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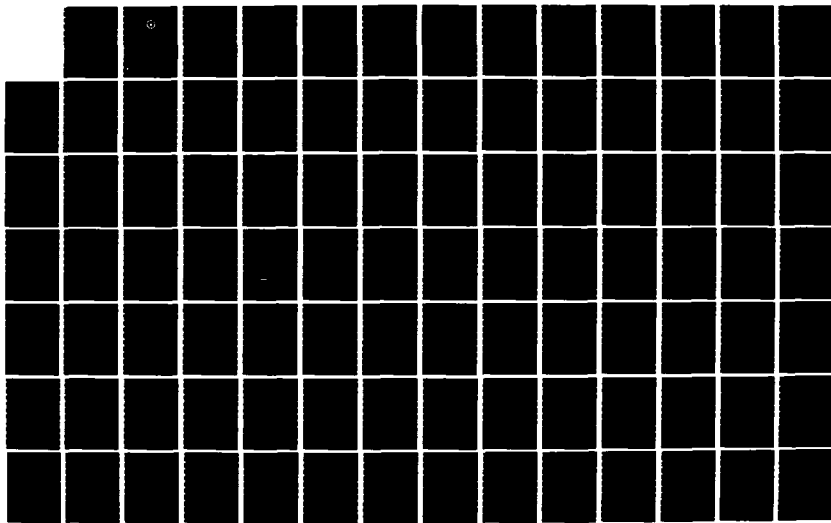
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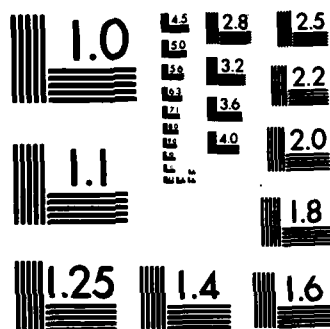
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Department of Defense



Report on Allied Contributions to The Common Defense

A Report to United States Congress

MARCH 1983

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REPORT ON ALLIED CONTRIBUTIONS
TO THE COMMON DEFENSE

A REPORT TO THE US CONGRESS
JUNE 1983

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PREFACE

This report is submitted in accordance with the Levin Amendment, Section 1006(c) of Public Law 96-342, the 1981 Defense Authorization Act as amended by Section 1120 of Public Law 97-252, the 1983 Defense Authorization Act. It includes a comprehensive description of the contributions of the NATO allies and Japan to the common defense.

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I. INTRODUCTION AND OVERVIEW

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This report seeks to describe allied contributions to the common defense and to indicate what is being done to assure that the defense of Western interests is shared equitably. The need for equitable burdensharing seems very clear. The growing Soviet threat to Western interests -- as a result of the unremitting Soviet military buildup since the early 1960s -- requires an increased defense effort by both the US and its allies. In order to maintain adequate public and governmental support for this increased defense effort, equitable burdensharing is a sine qua non. Neither we nor our allies, especially at a time of economic difficulty for all, should expect any one nation to carry a disproportionate share of the common defense burden.

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There is no single indicator which can serve as an adequate basis for the assessment of equitable burdensharing. Allied contributions to defense can be understood best by examining and comparing a variety of indicators of ability to contribute, on the one hand, and actual contribution on the other. This report has used such an approach. Ability to contribute is assessed by such measures as gross domestic product, population, and an index that takes into account standard of living and economic development. Actual contribution is measured by such indicators as total defense spending, total defense manpower and major force holdings.

The NATO allies make important contributions to defense that are not directly measured by the quantitative indicators mentioned above. Contributions such as allied host nation support, FRG support for Berlin, earmarking of civilian assets for defense, etc., are discussed in detail in subsequent sections.

In addition, the data on allied defense efforts must be viewed in historical perspective. On the basis of historical trends of a variety of major burdensharing indicators, the non-US NATO allies have gradually taken on more of the common burden. This pattern holds both for the current situation compared with the early 1970s, as well as the current situation compared with the early 1960s, i.e., prior to the US build-up in Southeast Asia. For example, between 1971 and 1981, real US defense spending declined by around 7%, whereas defense spending of the non-US allies increased by 27% (23%, excluding Japan). For the same period, US active duty military and civilian defense manpower declined by almost 20%, while that of the allies declined by around 3 1/2%. For active duty military manpower (i.e., excluding civilians), the US decline was 23%, compared with around 2% for the allies.

The US is now engaged in an effort to redress some of the deficiencies that occurred during the years when defense resources were steadily declining. Thus, the burdensharing pendulum is beginning to swing in the opposite direction for some indicators. For example, US increases in real defense spending have exceeded the increases of the non-US NATO allies in recent years.

The projections for 1982 and 1983 which indicate that the allies will fail to meet the NATO aim for 3% annual increase in real defense expenditures are of particular concern. Although the non-US NATO allies achieved real increases of 2.7% in 1980 and 1981, current estimates indicate a real spending increase of only 1.0 to 1.6 in 1982. For 1983, these increases are tentatively projected to be in the range of one percent. The US, in contrast, increased its real defense expenditures by 4.1% in 1981 and by 7.5% in 1982. These trends, if they continue, threaten to undermine the progress achieved in prior years toward a more equitable distribution of the allied defense burden.

An important underlying problem is the difficulty of maintaining increased defense expenditures at a time of worldwide recession. Every allied government faces domestic political pressure to cut back on defense. It is heartening that many allied governments, despite this pressure, continued to increase their defense expenditures in 1982. But again, the declining rate of increase -- and for several governments an absolute decrease in defense expenditures -- is a matter of serious concern. The key need is to obtain adequate public support for sustained defense improvements. At this delicate juncture in East-West relations, none of the allies can afford cutbacks in national contributions to the defense of Western interests.

A summary evaluation, on the basis of various quantitative burdensharing measures, suggests that the US contribution to the total defense effort of NATO and Japan is somewhat more than its fair share. The contribution of the allies varies widely from nation to nation. Among the non-US NATO nations, some measure up extremely well, while a few do very poorly. Japan, the only non-NATO nation addressed in this report, is doing considerably less than its fair share.

Important changes during the past year with regard to burdensharing are described in Section IV. In the case of Japan, Prime Minister Nakasone is committed to an enhanced defense effort. In the case of NATO, encouraging developments include (1) satisfactory progress on 70% of the measures under the Long-Term Defense Program and (2) agreement to consider a substantial increase in the ceiling for the NATO Infrastructure Program. Significant progress has also been made in developing various kinds of host nation support arrangements with NATO countries.

US actions to decrease its contributions to NATO, such as troop withdrawals from Europe, will not help to increase the allied defense contribution. The need for an increased defense effort has been made very clear to our allies. There is no evidence to indicate that US troop withdrawals would spur our allies to do more on their own behalf. Indeed, all indications are that a withdrawal would have the opposite effect and adversely affect US defense interests. To many Europeans, a unilateral withdrawal would convey the impression that the US no longer considers the Warsaw Pact threat a serious problem. US admonitions

to the allies to do more would be met with considerable skepticism. For other Europeans, a unilateral US withdrawal would lead to the conclusion that a successful forward defense is not achievable, thereby increasing the likelihood that accommodation would be sought with the East. Rather than reduce its commitment to the common defense, the US must lead by example. Indeed, the US cannot afford to reduce its commitment to allied defense -- as a vital matter of US national security -- while the Soviet threat to Western interests continues to grow.

Recent actions of the Congress have complicated efforts to encourage greater burdensharing. These actions include the reduction in procurement funds for Pershing II and the Ground-Launched Cruise Missile. Outside of these decisions, however, Congress has indicated, with regard to Pershing II, that it remains firmly committed to Intermediate-Range Nuclear Force (INF) modernization in Europe. But the reduction in procurement funds, by giving the false impression that the US may be reducing its commitment to allied defense, tends to feed the political pressure in allied nations for defense cutbacks. The allied decision to deploy INF systems in 1983 -- unless concrete results can be achieved at the INF negotiations -- is itself a prime example of burdensharing. It is critically important for the success of this effort, which has become a sensitive political matter for European governments, that the US not appear to weaken in its determination to proceed.

Other Congressional provisions which are detrimental to burdensharing initiatives are the specialty metals restrictions on defense procurement and the denial of funds for the Wartime Host Nation Support (WHNS) agreement with the FRG and the prepositioning in Europe of two additional division sets of combat equipment, referred to as POMCUS sets 5 and 6. The specialty metals restriction has a direct effect on burdensharing by hindering cooperative defense production and defense industrial offsets. In fact, the restrictions could jeopardize the new initiative to exploit emerging technologies for improved NATO defense since this effort is heavily dependent on coproduction and trade. The WHNS agreement, just concluded last year, and POMCUS sets 5 and 6 are both examples of another aspect of burdensharing whereby the allies have undertaken to help support US reinforcements to NATO Europe during crises or war. The failure to meet commitments under the WHNS and POMCUS programs, despite cost-sharing arrangements that are highly advantageous to the US, undercuts US credibility on the entire burdensharing issue.

The principal need for the coming year is, in close collaboration with the allies, to bring to fruition programs to improve Western defenses. The true meaning of burdensharing and the offsets must not be sidetracked as it involves such programs as the Ground-Launched Cruise Missile basing, host nation support, prepositioning sites, etc. The Congress should act to provide appropriate relief on the matters discussed above at the earliest possible date. The burdensharing challenge for 1983 is to push ahead with national and joint programs for defense improvement,

with particular attention in the NATO case to INF deployment. It will not be possible to convince the new regime in the USSR to negotiate seriously on arms control unless all the NATO allies show the political will to take the necessary steps to insure that NATO's posture of deterrence and defense is credible. In the face of the relentless Soviet buildup, steadfastness of purpose and action by both the US and its allies is essential for the continued protection of their vital interests.

II. BURDENSARING FACTORS

The primary objective of NATO is to provide for the desired level of security for the people of the entire NATO area. We want to achieve this objective at the lowest necessary level of burden and on an equitable basis. While this is the basic objective, defining it in concrete terms is elusive.

An analysis of what constitutes the "desired level of security" in these closing decades of the 20th century is beyond the scope of this paper. However, it is clear that this fundamental consideration must influence how much burden a country is willing to carry. Nations may perceive the threat somewhat differently, and will be reluctant to expend scarce resources for force improvements they believe are unnecessary or postponable. In such a situation, if external political pressures do result in the allocation of additional resources, this may be at the expense of Alliance cohesion.

By the same token, an equitable burden in meeting even a commonly perceived threat defies agreed definition. Burdensharing is not a simple comparison of expenditures but must somehow translate into equitable sacrifice relative to a nation's capability.

An early NATO report on burdensharing concluded:

"In the last analysis, our assessment and comparison of burdens require a collective act of judgement which cannot be substituted by any mechanical principle ..." [What should be] "aimed at is an assessment of the reasonableness of the defense effort of each country, having regard to its overall economic position as shown by a series of economic indicators. This reasonableness would involve a broad equality of sacrifice which takes into account each country's capacity".

What might be added is that the political burden should also be considered, as well as offsetting benefits such as industrial contracts and jobs, technological fallout, foreign military sales, and political freedom of action.

Because of these difficulties, and despite many efforts, NATO has not developed a precise definition of the burden or a methodology for measuring it.

Annex B has a more detailed discussion of the technical and conceptual problems that complicate burdensharing comparisons. For example, a country with balance of payment problems tends to emphasize the cost of troops stationed outside its territory or the procurement of military equipment abroad. Countries with low standards of living or serious economic problems point to the importance of strong economies on which to base military strength. However, a broad discussion of both the political and economic factors that influence and constrain national decisions and actions on alliance security issues follows below.

POLITICAL FACTORS

Our major Free World partners clearly share a basic commitment to the institutionalized arrangements which link them to the United States in the pursuit of collective security; i.e., the North Atlantic Treaty Organization (NATO) in the case of our European allies and Canada and the bilateral Treaty of Mutual Cooperation and Security in the case of Japan. There is also a broad acceptance of the principle of equitable burdensharing. This is shown not only in such formal pronouncements as those of the Bonn NATO Summit of June 1982 and of successive ministerial level meetings of the North Atlantic Council and NATO Defense Planning Committee, but it is also evident in the concrete plans and actions which have been adopted and which, in many respects, are being effectively implemented.

Nonetheless, differences do arise as we seek to coordinate our political and politico-economic responses to challenges to security (e.g., Poland and Afghanistan), and as we seek to stretch limited national resources to cover levels of expenditures adequate to keep our posture of deterrence and defense credible. To a large extent, the divergencies of policy and action -- especially in the area that might be termed "political" or "political-economic" burdensharing -- stem from differing perceptions. For a number of historical, geographical and political reasons, precise evaluations of the Soviet threat and of the most effective mix of responses thereto may sometimes differ between the US and its allies. Our European partners, in particular, while essentially supportive of a strong Western stance against destabilizing and aggressive actions on the part of the USSR and Warsaw Pact, must take into account bodies of domestic opinion which tend to place considerable reliance on the efficacy of dialogue and of economic and cultural ties in moderating such behavior. Individual governments may have special regional, ideological or ethnic concerns which add unique nuances to their outlook and place constraints on the degree of activism which they can show in a given policy area. When these more philosophical differences are compounded by the interplay of significant national economic interests, as in the question of Western participation in the construction of the Soviet gas pipeline, the effort to reach a consensus becomes especially complicated.

With respect to burdensharing in the sense of resource allocation for defense, the major contributing factors to divergencies of view among allies appear to be fiscal stringencies, domestic social demands and the consequent need to make difficult political choices. While national perceptions of the immediacy of the threat posed by the Soviet military buildup and Soviet international policies and behavior may vary, there is a general consensus among allied governments that it is necessary to improve the West's military capabilities to redress existing imbalances and to anticipate the longer term implications of current trends. The United States, which has increased its own defense expenditures by 7.5% in FY 82 and estimates an increase of 10.3% in FY 83 despite competing priorities for government resources, cannot but express disappointment when its allies fall well below minimal target figures for maintaining momentum on force improvements. At the same time, an objective analysis requires recognition that the domestic political, economic and

social dilemmas faced by allied decision-makers in a time of persistent world recession are real. In Europe and Canada -- as indeed in the US -- diminished levels of employment, consequent drops in tax revenue and increases in social assistance outlays claim urgent national attention and place severe pressure on public sector budgets. The US perception of a highly productive and prosperous Western Europe able to sustain an increasingly greater share of the common defense remains valid in many respects -- e.g., the social benefits in the most developed of the fifteen other NATO nations remain generally more extensive than in the US and standards of living remain high -- but it is not as valid as it might have been some five to seven years ago. In any case, it is a perception which many Europeans with growing tax burdens and incomes now beginning to diminish in real terms do not readily share.

Another factor, which to date has been more significant in terms of political burdensharing than in terms of the allocation of material resources, has been the growth of peace movements in many of the countries of the Atlantic. While some of these groups, or elements therein, have called for the dissolution of NATO, cutbacks in conventional defense spending and the like, their major focus, so far, has been an opposition to nuclear weapons, and their major effect has been to raise the political cost of national decisions in support of the nuclear component of NATO's deterrence triad. Thus, they have complicated governments' tasks in "political" burdensharing. Leaving aside the indisputable Soviet activities -- both overt and covert -- to orchestrate and exploit these movements in an effort to sap the West's political will, the European peace movements themselves reflect in large part essentially indigenous political, historical and cultural factors and are characterized by a number of sometimes paradoxical assumptions and conclusions.

Common to all these movements is a fear that East-West rivalries may be slipping out of rational control and that war -- particularly nuclear war -- is more likely now than in the last several decades. Behind this lies at least a tacit recognition that the era of "detente" did not live up to its promise and that the apparent easing of tensions masked an intensified Soviet arms buildup, the beginnings of global projection of Soviet power, and new threats to the vital interests of the West in areas outside of NATO Europe. At the same time, there is a certain nostalgia for what seemed a more secure period and an understandable desire for new efforts to achieve constructive East-West relationships. A perception of declining US power and will is often coupled with suspicions of US motivations, political acumen and ability to maintain a consistent policy line. There is sometimes a marked tendency to equate US objectives and behavior with those of the USSR -- an expressed mistrust of all superpowers.

As a contributing element to this erosion of confidence in US leadership and commitment and in the continuing validity of NATO's strategy of deterrence, European commentators have often cited the rise of "the successor generation." It is undoubtedly relevant that much of today's adult population in Western Europe has no direct memory of World War II, the lessons of the democracies' pre-war unpreparedness and attempted accommodations,

or of the US role in liberating Western Europe, in materially assisting its economic and political resurgence and in providing a strategic shield behind which the collective political will and the effective defense posture of the Alliance have maintained peace with freedom for almost 40 years.

While many of the solutions advanced by the peace movements of the last several years would, in fact, undermine the prospects for lasting stability and security in Europe and worldwide, these movements do reflect many deeply felt concerns of free citizens in our Western democracies about key issues of survival and security and human decency. The US and allied governments must deal seriously and forthrightly with these concerns, making their policies and the sacrifices needed to implement those policies intelligible and supportable by the citizenry.

Examining the record sheet against the backdrop of these political and politico-economic constraints, it is clear that despite shortfalls between targets and achievements there is much concrete evidence that our partners are taking seriously the principle of burdensharing.

-- In almost all cases, defense spending was accorded a degree of priority over social spending, i.e., while the defense budgets may not have increased in most cases at the target three percent, social spending was similarly restrained, or even decreased in real terms.

-- The allies are moving forward steadily on bilateral arrangements for expanded wartime host nation support, much of which is committed on a non-reimbursable or on a "cost" basis. They are also making further efforts to reduce US costs in improving US force facilities and the quality of life for US personnel abroad.

-- Over the past several years, the allies have agreed on expanded construction programs financed by common funding under the NATO Infrastructure Program. In response to US concerns, criteria were broadened to permit financing of certain types of projects (e.g., storage sites for US forces) previously funded entirely by the US. By decision of the Defense Ministers in December 1982, NATO now has under study the question of further augmentation of the Infrastructure Program.

-- NATO's evaluation and planning procedures have been steadily improved to assure more rational and effective allocation of resources to assigned missions.

-- In terms of political burdensharing, the allies are holding firm, despite the Soviet "peace offensive" and elements of organized domestic opposition, in their basic support of NATO's 1979 decision on intermediate-range nuclear force modernization and arms control efforts.

-- Our NATO partners have formally recognized that certain out-of-area developments can impact on vital Western interests, that individual Alliance members may have to take actions to protect those interests and that other partners can contribute to the common cause by facilitating

such actions, while all take appropriate compensating measures to assure the maintenance of an adequate defense posture in Europe.

-- While divergencies of policy have received major media and popular attention, there has, in fact, been a considerable degree of consensus on responses to such developments as Poland and Afghanistan, and a significant degree of allied cooperation and coordination, both with respect to national measures and to actions in multilateral fora.

In sum, we and our allies are in general agreement that greater efforts by all are called for. The Administration is continuing efforts to develop with the allies new approaches to ensure that the US does not bear a disproportionate share of common responsibilities. At the same time, it would be a mistake to sell short the degree of cooperation and burdensharing which does exist and the concrete efforts which are being made by allies under politically and economically difficult circumstances.

It must also be borne in mind that the United States, unlike its allies, is, in fact, a superpower with worldwide strategic interests and objectives and global responsibilities. In the broadest sense, US actions in support of world order and stability serve the interest of all the Free World, but in a more narrow sense we have a freedom to pursue our own perceptions of global interests, goals and appropriate strategies which our partners do not have. This points to an intensity and type of effort, which inescapably, will be greater than that of our allies.

We also have a leadership role within our alliances and, to be effective, we must lead not only by advocacy, but by example. Indications that the United States' commitment to its most fundamental collective security relationships may be flagging might seem to inspire allied moves toward greater burdensharing in the short run. Over the longer term, however, this will undermine confidence in our reliability and steadfastness, and thus erode allied belief in the continued relevance of those cooperative arrangements that have served the US and its allies -- and the cause of world peace and stability -- so well for almost four decades.

ECONOMIC FACTORS

There are several economic factors which contribute to a full understanding of the burden actually borne by NATO members in their collective defense. The nation's particular economic situation and its balance of payments position are important short-term determinants of the assets a nation will find it feasible to make available for its defense. A nation's stage of economic development is a longer-term and less tractable limit on a nation's potential commitment. Other more or less indirect contributions should also be taken into account: resource transfers to less developed countries, both official and private; contributions in kind, e.g., land, buildings and facilities; lost tax revenue; and lost commercial opportunities. NonNATO defense expenses, such as the German government's defense of Berlin, must also be considered in order to round out the total expenditure picture.

General Economic Situation

NATO countries without exception have gone through a disappointing year. The economic upturn predicted for late 1982 did not take place -- and inflation, lack of growth and unemployment have worsened in most cases. NATO nation political leaders have been faced with the inability to continue their agreed growth in defense effort and to meet the increasing costs of broad social programs -- which European publics have come to expect and rely upon since the wave of European prosperity began after the end of World War II. Electorates are reluctant to give up these sound gains or to admit that post WW II prosperity may have peaked and that some form of sacrifice may be in order to maintain essential deterrent forces.

High interest rates problems have often been advanced in the context of the burdensharing analysis. The argument is that high US interest rates have caused most of the major capital outflows from Europe to the US and complicated Europe's economic situation. This is, at best, an oversimplification since there are several other factors which have encouraged a temporary flight of capital. Fears of European recession, uncertainties over the directions taken by governments, nationalizations in France -- all contributed at least as much as the higher rates of return available in the US. In any case, since US rates have dropped considerably in 1982, this argument can now be laid to rest.

Social Program Expenditures

As noted above, European governments have provided a remarkable number of social guarantees and benefits to their populations in the past thirty years or so. In some cases, building on social legislation and programs worked out during the thirties (or even earlier), postwar European governments have constructed an edifice of social guarantees from which there is no practical turning back. The growth of these European entitlements (similar to US programs of the same era) is not easily controlled, and moves to curtail or reduce benefits require extraordinary political will and persuasiveness.

In fact, although there may be grudging acceptance in the US of the difficulty of increasing social programs in bad economic times, this idea has not taken hold at the grass roots in Europe and the question there is whether already constrained defense programs shall be cut in order to avoid any decrease in the level of social benefits. In some countries social transfers have ratcheted up to a level where NATO defense contributions have been seriously hurt.

These social programs are by no means always unproductive, nor would their elimination or reduction necessarily mean that the resources released would be available for defense. One example would be government-provided or subsidized day-care facilities which make it possible for many Northern European women (50% of the total) to enter the labor market. Without this program, their contributions would be lost to the nation's Gross National/ Domestic Product with corresponding losses to the defense effort.

Nonetheless, there seems to be a growing recognition in some NATO countries that social programs cannot grow exponentially -- particularly in a period of no growth. Where the economic pie is not growing, and nations are committed to increases in defense spending (3% real growth), the extra funds will have to come from somewhere, and social programs are the obvious source. This requires a good deal of political courage and it is not yet clear whether all our allies will be able to find it.

Contribution of Stationed Forces to Host Nation Economy

A tangible benefit to nations where NATO troops are stationed is the hard currency contributions, both official and personal, which go along with maintenance of large forces in being. Housing, food supplies and energy are a few of the major expenditures which are largely bought from the host country. Support services and administration are also largely staffed by nationals of the host country, making military bases important employers in several nations. In the nearly forty years since the end of WW II, the economies of numbers of communities in Western Europe have become tightly linked to the spending patterns of local base administrations. Local economies also benefit from base-related priorities for internal redistribution - where national governments spend important sums locally in support of facilities on their own soil. While this does not add to the income of the nations at large, it has important local effects.

Effect of Inflation on Defense Spending Measurement

The problem of measuring inflation's effects on the various nations' defense expenditures has been difficult and is not yet really solved. The most promising approach has been the use of the defense deflator, a factor calculated for each nation which provides a more or less close estimate of a particular country's defense expenditure in real terms; i.e., in terms of some agreed base-year's expenditure. The ideal deflator would allow a comparison among national defense budget outlays accepted as accurate by all NATO countries. There are several methods used to compute deflators but none has the whole-hearted support of all member nations. Nonetheless, despite the difficulty in calculating the various deflators and the reluctance of member nations in accepting figures based on their use, deflators are widely employed for making comparisons.

Accurate measurement of inflation and comparison with allowance for inflation is important because of the widespread public perception that increased defense expenditures in nominal terms actually represent increases in equipment, readiness, force strength, etc. It is in fact more common for inflation to weaken NATO's posture, even when defense expenditures may initially continue to increase in real terms. In the

face of inflation-augmented social claims of the unemployed, the destitute and the elderly, governments soon find that the national consensus on defense spending is wearing thin. All NATO countries found themselves in this position to greater or lesser extent during 1982.

Effects of Defense Expenditures on National Economies

Defense expenditures, like other government transfers within a given economic system, have important effects on a national economy. They do not fluctuate much with the state of the economy as many government programs do, but in general, they provide reliable, long-term income and employment in both defense and defense-related industries. There are technological advantages accruing to all sectors of industry from spin-off from military technology.

Important savings can also be realized when large production runs of standardized material are made available for sale to several or all NATO members. The economics of scale involved aid smaller nations particularly, releasing them of the necessity of setting up low volume, inefficient facilities to produce items solely for their own use.

International Balance of Payments

All NATO countries continue to struggle with more or less severe balance of payments problems. The two oil shocks have made these problems more acute. While there is only limited leeway in most nations' ability to control their purchases of energy, they may feel they have greater discretionary control over paying hard currency for military imports. In some cases, nations feel constrained to demand substantial industrial offsets to balance their purchases from outside their borders and in others, pressures grow for the establishment of independent domestic arms industries. Those nations that maintain a substantial number of troops beyond their own borders (Belgium, US, France, UK) incur further balance of payments liabilities as a result of the outflow of funds to support these foreign deployments.

In recent years, Turkey, the least developed of the NATO nations, has had the most severe balance of payments problem in the Alliance. The richer NATO countries have attempted to help out with substantial aid flows. A three year stabilization program is working well and Turkish exports are up.

Economic Development

The NATO Alliance has several members (and sub-national regions) which are classic underdeveloped areas. Turkey is probably still a bonafide less-developed country. Portugal is in a slightly better position, as is Greece. Both Spain and Italy have large areas significantly below the income levels of the rest of the national territory. The stability of these nations is, to a greater extent or lesser extent, dependent

on their continued development, and thus this development will to some extent determine their roles in the Alliance in future years.

West Berlin

Germany makes substantial outlays for the defense of West Berlin which include the support of three allied garrisons (US, UK and France). There are also programs funded by West Germany designed to promote the political and economic stability of the city. Because of several wartime and postwar agreements, West Berlin expenditures, even for the military garrisons, cannot be included as defense expenditures in NATO tallies. Yet, it is Alliance doctrine that the defense of West Berlin is a NATO commitment. If the funds West Germany spends in West Berlin (over \$7 billion per annum) were included in her NATO total, her officially documented alliance burdensharing level would go up substantially. The city of Berlin remains of great psychological value to Germans on both sides of the border, while the NATO commitment to its defense is a visible measure of NATO's resolve in Central Europe.

Use of the Defense Budget to Subsidize Industry and to Promote Social Programs

Numbers of NATO countries, from time to time, have used defense appropriations to subsidize domestic industry and/or to promote social programs. There is no objection per se to these practices, which are the right of any sovereign nation, but they should have the improvement of the national defense as their primary aim. To the extent that they are protectionist in nature or act as hidden export subsidies, they touch upon the interests of trading partners and are subject to protest under various multilateral and bilateral agreements.

Industrial Impact

Over the years, several programs have been developed within NATO for the cooperative development and production of NATO weapons. Among these are coproduction, dual-production and the families of weapons concept. These programs all involve the sharing of development and production costs and have produced large savings in R&D expenditures to individual nations. They are the primary avenue of technology transfer among the nations of the Alliance. Weapons program transfers operate in both directions. For example, the US has bought the MAG-58 machine gun and the 120mm tank gun from Europe and European manufacturers have fabricated the F-16 airframe and components.

In defense equipment trade, the balance is still well in the United States' favor. In dollar terms we sell approximately six times more equipment to Europe than they buy from us. This may be partly explained by the preponderance of big ticket items (warplanes) we sell to Europe, but the trade situation might be healthier if the 6:1 ratio could be lowered.

Aid to Developing Countries

Official aid to developing countries is sometimes cited as part of a nation's overall defense burden. In addition to military assistance, which is included in NATO's definition of defense expenditure, most industrialized NATO countries extend various types and amounts of developmental assistance to developing countries. While these expenditures do not add directly to NATO's defensive capability, they do in general contribute to Free World peace and stability and they do constitute a financial burden on the donor's economy. The proportion of putative economic aid actually assignable to defense-related purposes should be estimated on a case-by-case basis. There is so much variation in the objectives and recipients of aid that direct comparisons between donor countries are very hard to make.

Further, defining "aid" is extremely difficult and can be misleading. Exemptions from tariff and non-tariff barriers, monetary and non-monetary preferences, standards and codes and a variety of preferential commercial arrangements all influence the amounts of assistance provided in real terms. Statistical problems abound. Chart II-1 is an attempt to reconcile as many of the problems as possible.

CHART II-1

OFFICIAL DEVELOPMENTAL ASSISTANCE AS PERCENT OF GDP

	Percentages						\$ Millions		
	1976	1977	1978	1979	1980	1981	1979	1980	1981
Belgium	.50	.47	.55	.58	.50	.59	643	595	574
Canada	.45	.50	.52	.56	.42	.42	1056	1075	1188
Denmark	.51	.55	.69	.70	.72	.70	453	474	403
France	.61	.59	.57	.60	.64	.73	3449	4162	4177
Germany	.36	.33	.37	.45	.44	.47	3393	3567	3182
Italy	.12	.09	.14	.08 ^a	.17	.19	273 ^a	683	665
Japan	.20	.21	.23	.27	.32	.28	2685	3353	3170
Netherlands	.76	.81	.78	.93	.96	1.07	1472	1630	1510
Norway	.70	.82	.87	.91 ^a	.85	.82	429 ^a	486	467
United Kingdom	.39	.44	.46	.53	.35	.44	2156	1851	2194
United States	.26	.25	.27	.20	.28	.20	4684	7138	5780
Non US NATO	.44	.44	.46	.50	.48	.56	13,324	14,523	14,360
NATO	.35	.34	.37	.36	.38	.36	18,008	21,661	20,140
Total	.33	.32	.34	.34	.37	.35	20,693	25,014	23,310

a., Excluding Administrative cost (not available)
 Note: Administrative cost excluded up to 1978

Source: State Department

III. BURDENSARING MEASURES AND PERFORMANCE

INTRODUCTION

As discussed earlier, there currently exists no agreed mathematical formula that enables us to combine, with appropriate weighting, all of the major elements of burdensharing into a precise "super indicator" of fair shares. In an effort to be responsive to the spirit of the Congressional request for a comparison of "fair and equitable shares ... that should be borne" and "actual defense efforts ... that currently exist," we have adopted a general approach that entails displaying side-by-side a number of selected indicators. Our overall assessment takes into account these indicators and the non-quantifiable factors discussed elsewhere in this report.

BURDENSARING MEASURES AND PERFORMANCE

This section and Appendix A provide a detailed comparison of US and allied efforts based on a variety of major burdensharing indicators. This material addresses each indicator individually, discussing the purpose/utility of the indicator as well as important caveats and limitations. Relevant statistics are summarized and/or graphically depicted in accompanying charts. The indicators encompass three general categories: (1) indicators of ability to contribute (e.g., gross domestic product, population, etc.) 1/, (2) indicators of amount of contribution (e.g., total defense spending, and total military and civilian manpower) 2/ and (3) indicators that relate contribution and ability to contribute (e.g., percent of GDP allocated to defense spending). 3/

In theory there could be another category of indicators depicting benefits received. For the most part these are highly subjective and not easy to quantify. Since one of the major benefits of participating in a common defense effort is successful deterrence of conflict and freedom from foreign domination, some would argue that the larger a nation's population, GDP, etc., the more that nation has to lose if the combined defense effort is not successful. Under this line of reasoning many of the indicators of economic condition and strength would also reflect benefits received. Others would argue, however, that successful deterrence and freedom from domination are intangibles best left unquantified.

1/ All of these are depicted in Appendix A.

2/ One of these -- defense spending by resource category -- is depicted in Appendix A.

3/ One of these -- per capita defense spending -- is depicted in Appendix A.

In the final analysis, our primary goal must be to provide for a steady, coherent and sustained growth of allied defense capabilities to counter the ever improving Soviet and Warsaw Pact capabilities. This does not represent a retreat from a belief that the burdens of Alliance membership must be distributed as widely and as equitably as the benefits. It does reflect a growing concern, however, that we have focused too often solely on an examination of each member's respective contribution to that objective.

Total Defense Spending

This indicator depicts defense spending by each nation and each nation's share of the NATO and Japan total. The figures in Charts III-1, III-2, A-9 and A-10 for the US and the NATO allies are based on a definition agreed by NATO on what is to be included in total defense spending. While this ensures a much higher degree of compatibility (both for comparisons among nations and for examining trends over time) than could be obtained using any other available data, some nations feel their defense efforts are understated by this definition because NATO criteria do not include certain expenditures of a unique nature.

(1) Germany, for example, feels that its economic assistance to Berlin and support for the Berlin garrisons, which is not considered a "defense expenditure" under NATO's accounting rules, contributes significantly to the Alliance defense effort in the broadest sense of the word. If included, these expenditures would increase Germany's total defense spending in 1981 by around 25%.

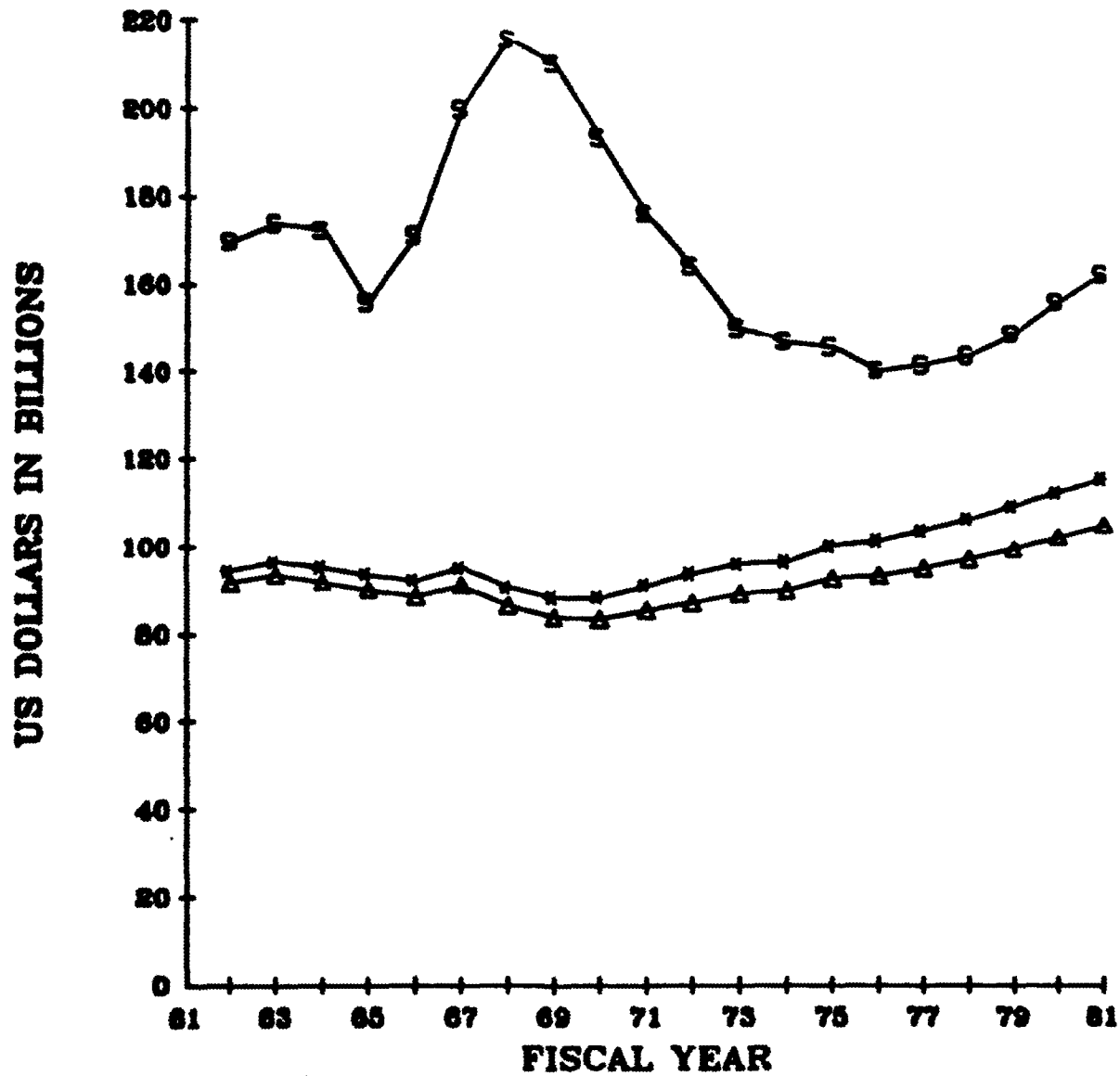
(2) Defense related costs such as real estate provided for stationed forces and some host nation support expenditures are not counted in the NATO definition.

(3) Some European nations, especially Germany, incur additional expenditures by hardening or building redundancy into civil projects such as roads, pipelines and civilian communication systems. Much of this expenditure is not reported under the NATO definition.

(4) The value of civilian assets, e.g., trucks that are planned for military use in time of war, cannot be counted as defense expenditures; yet, these assets make a direct contribution to NATO's and Japan's military capabilities. This is particularly applicable to Germany which has a significant program for registration of civilian assets that would be used by the Bundeswehr and allied forces during wartime.

It is also important to recognize that an identical amount of money spent by two nations will not necessarily translate into identical amounts of military capability. Since a number of our allies are able to get their manpower at a lower cost than does the US, traditional spending comparisons (such as the comparisons displayed in the accompanying charts) may understate the size and value of allied forces vis-a-vis our own.

**TOTAL DEFENSE SPENDING (FISCAL YEAR)
US DOLLARS IN BILLIONS
(1981 CONSTANT PRICES - 1981 EXCHANGE RATES)**



LEGEND

S UNITED STATES
Δ NON US NATO
* NON US NATO & JAPAN

FOOTNOTES

Based on the NATO definition of defense spending

CHART III-2

Total Defense Spending (FY)
(1981 Constant Dollars in Billions - 1981 Exchange Rates)

	1971			1981			Total % Change
	\$	% of NATO & Japan Total	Rank	\$	% of NATO & Japan Total	Rank	71 vs 81
Belgium	\$ 2.24	0.8%	9	\$ 3.39	1.2%	9	+51.1
Canada	\$ 5.17	1.9%	7	\$ 5.65	2.0%	7	+9.3
Denmark	\$ 1.38	0.5%	11	\$ 1.44	0.5%	13	+4.0
France	\$ 16.92	6.3%	4	\$ 23.80	8.6%	3	+40.7
Germany	\$ 18.07	6.8%	3	\$ 23.09	8.3%	4	+27.8
Greece	\$ 1.17	0.4%	13	\$ 2.58	0.9%	11	+119.7
Italy	\$ 7.56	2.8%	5	\$ 8.68	3.1%	6	+14.8
Luxembourg	\$ 0.03	0.0%	15	\$ 0.05	0.0%	15	+81.6
Netherlands	\$ 3.97	1.5%	8	\$ 4.53	1.6%	8	+14.0
Norway	\$ 1.33	0.5%	12	\$ 1.65	0.6%	12	+23.9
Portugal	\$ 1.09	0.4%	14	\$ 0.84	0.3%	14	-22.5
Turkey	\$ 1.44	0.5%	10	\$ 3.01	1.1%	10	+109.2
UK	\$ 25.23	9.4%	2	\$ 26.42	9.5%	2	+4.7
US	\$ 176.06	65.8%	1	\$ 162.34	58.4%	1	-7.8
Japan	\$ 5.71	2.1%	6	\$ 10.57	3.8%	5	+85.1
Non US NATO	\$ 85.60	32.0%		\$ 105.12	37.8%		+22.8
Non US NATO + Japan	\$ 91.31	34.2%		\$ 115.69	41.6%		+26.7
Total NATO	\$ 261.66	97.9%		\$ 267.46	96.2%		+2.2
Total NATO + Japan	\$ 267.36	100.0%		\$ 278.03	100.0%		+4.0

Defense spending by all of the NATO nations and Japan in 1981 totaled \$278B, of which the US accounted for \$162B, or 58% of the total. The US share declined throughout most of the past decade. In 1971 the US accounted for 66% of the total and in 1974 around 60%. The US spending decline cannot be attributed solely to the Vietnam drawdown inasmuch as total US spending in 1971 was only slightly above the expenditure level in the early 1960s, immediately prior to the Vietnam buildup.

Percent of Gross Domestic Product (GDP) Allocated to Defense

This is probably the most popular of all indicators of defense burdensharing. Among its virtues are: (1) it is easy to compute; (2) it is based on data that are normally readily available, and (3) it is easy to explain and understand. Charts III-3, III-4, A-11 and A-12 refer.

When used as one of a variety of indicators, and with an understanding of some of its shortcomings, this indicator can provide valuable insights. Unfortunately, there is often a tendency to view this as the be-all and end-all and, thus, to rely on it to the exclusion of all other measures. Another problem is the tendency of some users of this measure automatically to assume -- explicitly or implicitly -- that the ultimate in equitable burdensharing would be for all nations to devote equal shares of GDP to defense. An opposing view frequently voiced within the Alliance is that it is more equitable and in the collective interest of the Free World for nations with the strongest economies to devote a proportionately larger share of their wealth to defense while the weaker members emphasize using their limited resources on basic domestic programs. This is akin to the graduated income tax used by the US and many other nations in allocating domestic burdens.

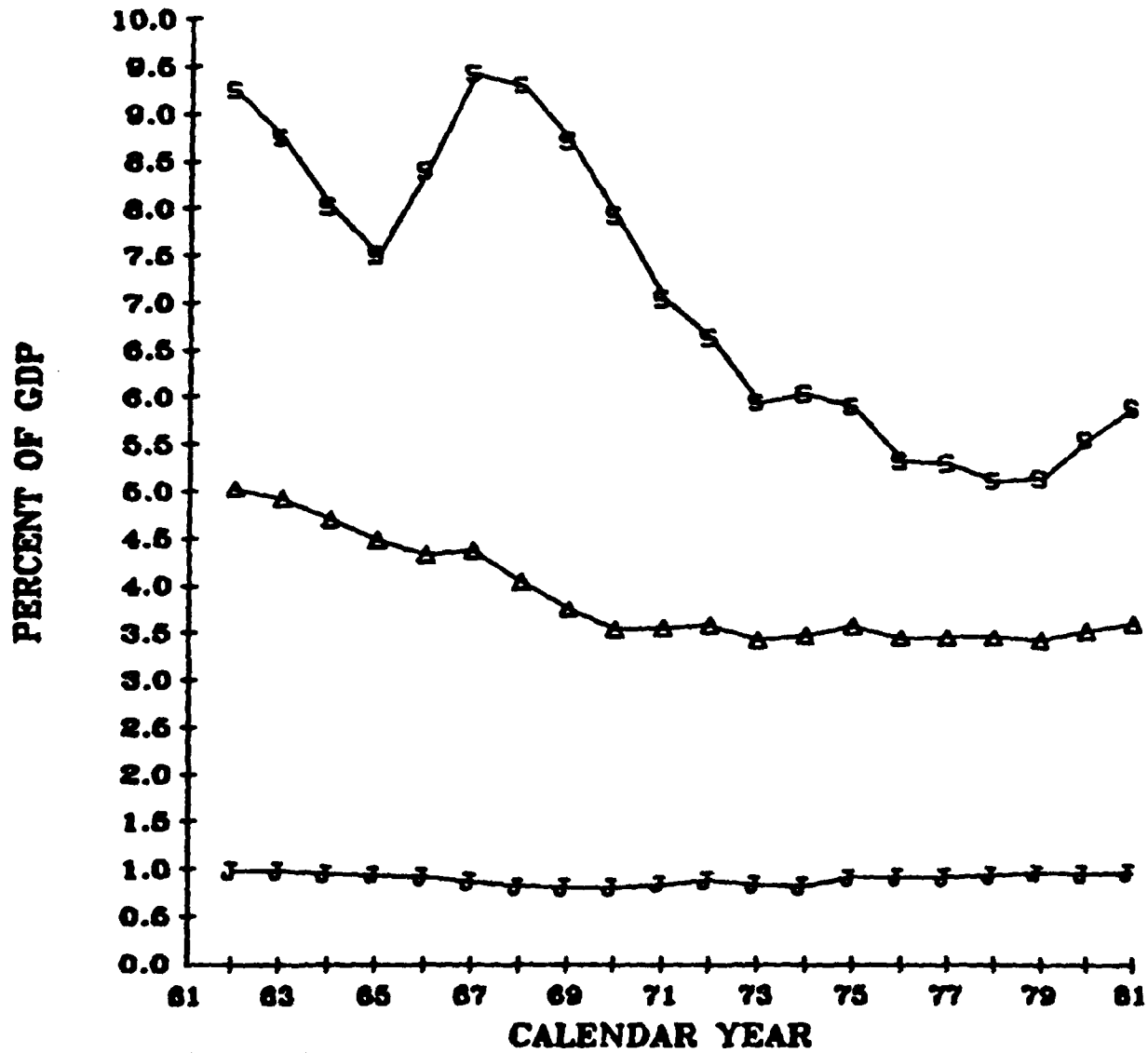
Finally, it is important to recognize that all of the problems discussed earlier that render total defense spending an imperfect indicator of a nation's total defense effort apply as well to defense spending as a share of GDP; i.e., it does not take into account efforts that are not directly reflected in defense spending.

(1) With a 1981 percentage of 5.9%, the US allocates a larger portion of its GDP to defense than do any of the other nations displayed here, except Greece. The UK's 5.0% places it third, followed by Turkey (4.9%) and France (4.2%). All of the remaining nations have shares of 3.6% or less. The allied weighted average is 3.6% for all non-US NATO nations combined and 2.9% for the non-US NATO countries and Japan.

(2) The obvious discrepancy between the US share and the shares of many of the allies can be attributed, in part, to our role as a nuclear superpower, the costs associated with maintaining an all-volunteer force and our worldwide interests and responsibilities. The very low Japanese percentage and relatively modest German percentage can be attributed, in part to political and constitutional constraints (on offensive forces for the Japanese and on force size for the Germans).

CHART 111-3

TOTAL DEFENSE EXPENDITURES (CY) AS A PERCENTAGE OF GROSS DOMESTIC PRODUCT



LEGEND

S UNITED STATES
Δ NON US NATO
J JAPAN

FOOTNOTES

Based on the NATO definition of defense spending

CHART III-4

Total Defense Spending as a Percent of GDP

	1971			1981			Total % Change
	%	% of Highest Nation	Rank	%	% of Highest Nation	Rank	71 vs 81
Belgium	2.9	39.2%	10	3.5	49.5%	7	+19.9
Canada	2.2	30.2%	13	1.9	26.7%	13	-16.1
Denmark	2.4	32.8%	12	2.5	35.5%	11	+2.8
France	4.0	54.1%	6	4.2	59.7%	5	+4.8
Germany	3.4	45.5%	9	3.4	48.1%	8	+0.3
Greece	4.7	63.3%	4	7.0	100.0%	1	+49.9
Italy	2.7	36.5%	11	2.5	35.3%	12	-8.3
Luxembourg	0.8	10.8%	15	1.2	17.5%	14	+54.5
Netherlands	3.4	46.5%	7	3.2	45.9%	9	-6.5
Norway	3.4	45.8%	8	2.9	41.1%	10	-14.9
Portugal	7.4	100.0%	1	3.6	51.1%	6	-51.5
Turkey	4.5	61.3%	5	4.9	69.6%	4	+7.8
UK	4.9	66.6%	3	5.0	70.6%	3	+0.6
US	7.1	95.3%	2	5.9	84.0%	2	-16.4
Japan	0.8	11.4%	14	1.0	13.7%	15	+14.2
Non US NATO	3.6	48.1%		3.6	51.3%		+1.1
Non US NATO + Japan	3.0	40.4%		2.9	40.9%		-3.9
Total NATO	5.5	74.4%		4.8	67.7%		-13.6
Total NATO + Japan	5.0	67.7%		4.1	59.1%		-17.2

(3) An examination of trends indicates that the weighted average percentage for all of the non-US nations combined declined steadily during the 1960s; however, since the early 1970s allied defense spending has generally kept pace with economic growth, resulting in a level trend in share of GDP for defense for 1970-81. By comparison, the US GDP percentage fell between the early 1970s and 1979, but turned sharply upward in 1980 and 1981. The drop is in part due to our Southeast Asia phase down. However, this continued the trend of reducing the GDP percentage started in the 1950's prior to our Southeast Asia buildup.

Total Active Duty Military and Civilian Manpower

Charts III-5, III-6 and A-19 depict the peacetime active duty military and civilian manpower resources allocated to defense by each nation and each country's share of the NATO and Japan total. Charts III-7, III-8 and A-22 contain similar breakouts for peacetime active duty military manpower only.

Including civilian defense manpower helps eliminate compatibility problems stemming from different national policies on civilianization of military tasks. Accordingly, the discussion below focuses on the combined military and civilian figures.

Since this indicator does not include reserve manpower, it tends to understate the efforts of nations, such as Norway, that have structured their forces around a small cadre of active duty personnel that can be rapidly fleshed out (by drawing on a large pool of trained reservists) in time of emergency.

In addition to reflecting differences in active/reserve policies, this measure also reflects differences in (1) the cost of manpower and (2) the extent to which programs emphasize labor intensive ground forces vs. capital intensive naval and air forces.

A review of trends indicates that US manpower declined around 19% between 1971 and 1981. Total non-US NATO manpower remained practically unchanged during the early 1970s but declined around 5% between 1974 and 1976 reflecting, in part, reductions in British, Italian and Portuguese manpower and offsetting increases in Turkish manpower. During 1974 through 1981, total non-US NATO manpower increased around 2%, reflecting increases in Turkish and Italian manpower, an offsetting decrease in British personnel and generally steady levels for most of the other allies. As a result of these non-US NATO changes, and a 2% increase in Japan's 1971-81 levels, the US share of the NATO and Japan total fell from 45.9% in 1971 to 41.7% in 1981.

Total Active Duty Military and Civilian Manpower and Committed Reserves

Chart III-9 includes the peacetime active duty military and civilian manpower addressed in the previous charts, plus an estimate of "committed reserves", i.e., reservists with assignments after mobilization.

TOTAL ACTIVE DUTY MILITARY AND CIVILIAN MANPOWER (IN MILLIONS)

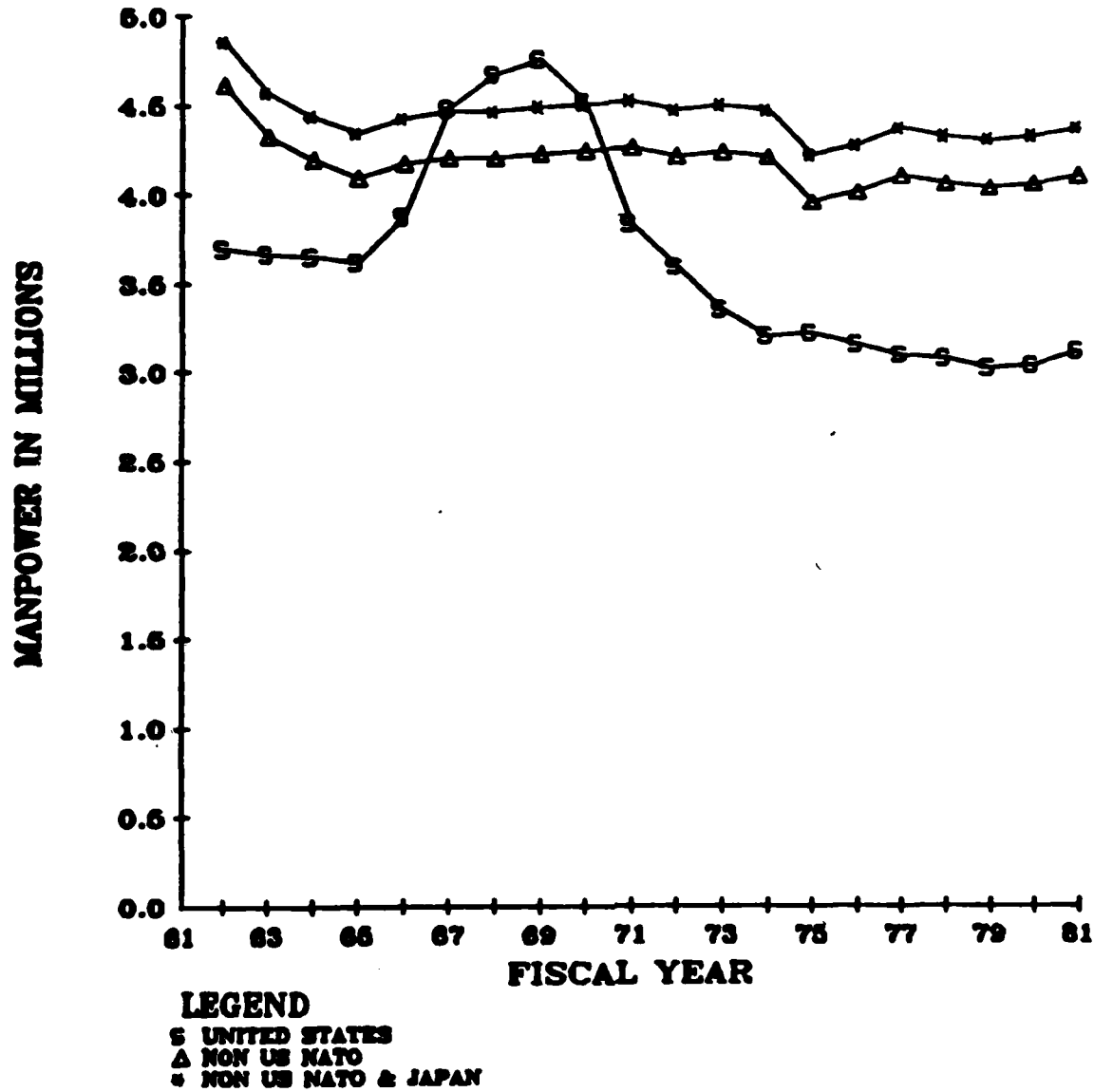


CHART 111-6

**Total Active Duty Military and Civilian Manpower
(Thousands)**

	<u>1971</u>			<u>1981</u>			<u>Total % Change</u>
	<u>(000)</u>	<u>% of NATO & Japan Total</u>	<u>Rank</u>	<u>(000)</u>	<u>% of NATO & Japan Total</u>	<u>Rank</u>	<u>71 vs 81</u>
Belgium	114.3	1.4%	12	117.3	1.6%	11	+2.6
Canada	127.8	1.5%	11	121.3	1.6%	10	-5.1
Denmark	53.6	0.6%	13	43.8	0.6%	14	-18.3
France	705.3	8.4%	3	712.2	9.5%	3	+1.0
Germany	645.3	7.7%	5	670.0	9.0%	4	+3.8
Greece	202.7	2.4%	9	212.7	2.8%	8	+4.9
Italy	600.5	7.2%	6	559.6	7.5%	6	-6.8
Luxembourg	1.2	0.0%	15	1.3	0.0%	15	+8.3
Netherlands	141.9	1.7%	10	134.6	1.8%	9	-5.1
Norway	47.0	0.6%	14	49.4	0.7%	13	+5.1
Portugal	249.4	3.0%	8	99.4	1.3%	12	-60.1
Turkey	650.5	7.8%	4	797.5	10.7%	2	+22.6
UK	719.0	8.6%	2	579.0	7.7%	5	-19.5
US	3631.7	45.9%	1	3120.0	41.7%	1	-18.6
Japan	258.9	3.1%	7	264.8	3.5%	7	+2.3
Non US NATO	4258.5	51.0%		4098.1	54.8%		-3.8
Non US NATO + Japan	4517.4	54.1%		4362.9	58.3%		-3.4
Total NATO	8090.2	96.9%		7218.1	96.5%		-10.8
Total NATO + Japan	8349.1	100.0%		7482.9	100.0%		-10.4

CHART 111-7

**TOTAL ACTIVE DUTY MILITARY MANPOWER
(IN MILLIONS)**

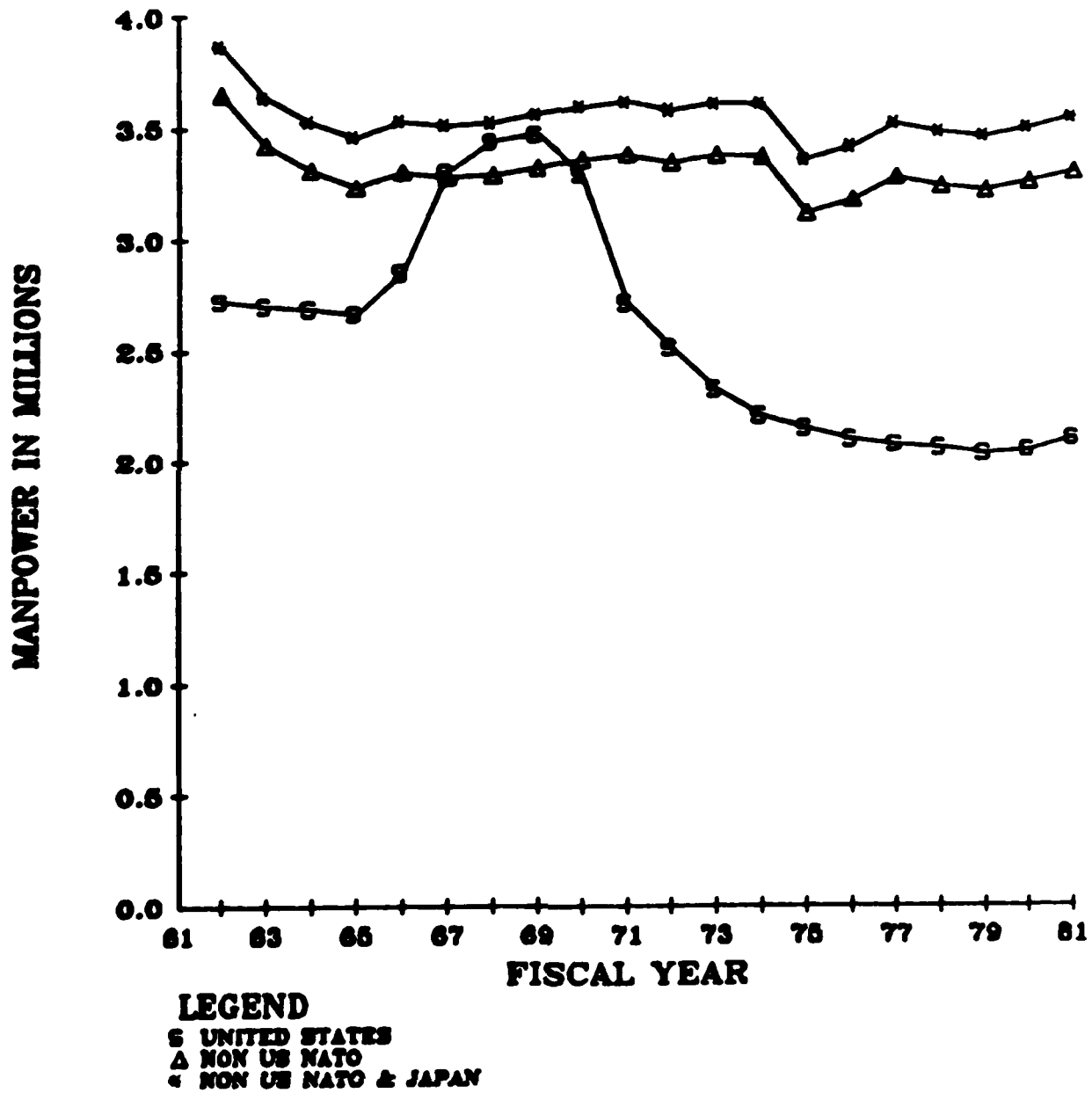


CHART III-8

**Total Active Duty Military Manpower
(Thousands)**

	<u>1971</u>			<u>1981</u>			<u>Total % Change</u>
	<u>(000)</u>	<u>% of NATO & Japan Total</u>	<u>Rank</u>	<u>(000)</u>	<u>% of NATO & Japan Total</u>	<u>Rank</u>	<u>71 vs 81</u>
Belgium	106.8	1.7%	11	109.5	1.9%	9	+2.5
Canada	86.9	1.4%	12	80.6	1.4%	12	-7.2
Denmark	44.5	0.7%	13	32.8	0.6%	14	-26.3
France	569.3	9.0%	3	575.2	10.2%	3	+1.0
Germany	472.0	7.5%	5	492.9	8.7%	5	+4.4
Greece	178.7	2.8%	9	187.6	3.3%	8	+5.0
Italy	526.0	8.3%	4	505.0	8.9%	4	-4.0
Luxembourg	1.1	0.0%	15	1.1	0.0%	15	0.0
Netherlands	113.0	1.8%	10	107.6	1.9%	10	-4.8
Norway	36.3	0.6%	14	38.5	0.7%	13	+6.1
Portugal	244.2	3.9%	7	88.4	1.6%	11	-63.8
Turkey	614.5	9.7%	2	741.2	13.1%	2	+20.6
UK	384.0	6.1%	6	341.0	6.0%	6	-11.2
US	2714.0	42.9%	1	2101.0	37.2%	1	-22.6
Japan	234.3	3.7%	8	241.0	4.3%	7	+2.9
Non US NATO	3377.3	53.4%		3301.4	58.5%		-2.2
Non US NATO + Japan	3611.6	57.1%		3542.4	62.8%		-1.9
Total NATO	6091.3	96.3%		5402.4	95.7%		-11.3
Total NATO + Japan	6325.6	100.0%		5643.4	100.0%		-10.8

CHART III-9

Active Duty Military and Civilian Manpower and Committed Reserves

	----- 1981 -----	
	% of NATO & Japan Total	Rank
Belgium	2.23%	10
Canada	1.26%	13
Denmark	1.04%	14
France	10.30%	3
Germany	11.61%	2
Greece	4.63%	7
Italy	7.33%	5
Luxembourg	0.01%	15
Netherlands	2.71%	8
Norway	1.97%	11
Portugal	1.31%	12
Turkey	9.79%	4
UK	6.33%	6
US	36.81%	1
Japan	2.70%	9
Non US NATO	60.50%	
Non US NATO + Japan	63.19%	
Total NATO	97.30%	
Total NATO + Japan	100.00%	

(1) NATO and Japan defense manpower -- with committed reserves included -- totals over 11M, of which the non-US NATO nations account for just over 7 million (63% of total) while the US contributes a little over 4 million.

(2) Most of the non-US NATO nations have larger shares of the NATO and Japan total under this measure than under the previous "active military and civilian" measure.

Total Military and Civilian Manpower as a Percentage of Total Population

This widely used and generally well understood indicator provides a basis for comparing the defense manpower contribution of each nation, taking into account differences in population. The discussion below addresses percentages that have been derived using military and civilian manpower combined (Charts III-10, III-11 and A-20). For information, similar charts based on military manpower only are also provided (III-12, III-13 and A-21).

(1) Active Duty Military and Civilian Manpower (Charts III-10 and III-11 apply.)

(a) This indicator shows a wide variation among nations in 1981, ranging from a high of 2.2% and 1.8% for Greece and Turkey, respectively, to 0.4% and 0.2% for Luxembourg and Japan. The US currently ranks third with 1.36% followed closely by France with 1.32%. Germany and the UK rank 7th and 8th with percentages of 1.09% and 1.03%, respectively, both below the non-US NATO average of 1.16%. In reviewing Germany's relatively low percentage, it is important to recognize that Germany's active duty force is limited by postwar treaties.

(b) An examination of trends reveals a sharp decline of around 19% in the US percentage between 1971 and 1974, followed by a more modest reduction (of around 9%) between 1974 and 1981, resulting in a total decline for 1971-1981 of 27%. The weighted average percentage for all of the non-US NATO nations combined fell approximately 10% between 1971 and 1975, but since the mid-1970s has remained generally level.

(c) The UK's 20% decline is largely due to a drawdown in British forces outside of Europe during the late 1960s and early 1970s, whereas Portugal's sharp decrease -- which caused its ranking to fall from 1st in 1971 to 9th in 1981 -- can be attributed to its massive withdrawal from Africa during the early 1970s.

(2) Active Duty Military and Civilian Manpower and Committed Reserves (Chart III-14). Including reserve manpower changes the percentages and rankings very considerably for several nations. Under this measure, Norway and Denmark rank 1st and 5th, vice 5th and 12th if reserves are not counted. The US and the UK show much poorer performance under this measure, with rankings of 9th and 12th, respectively, vice 3rd and 8th if only active manpower is considered.

TOTAL ACTIVE DUTY MILITARY AND CIVILIAN MANPOWER AS A % OF TOTAL POPULATION

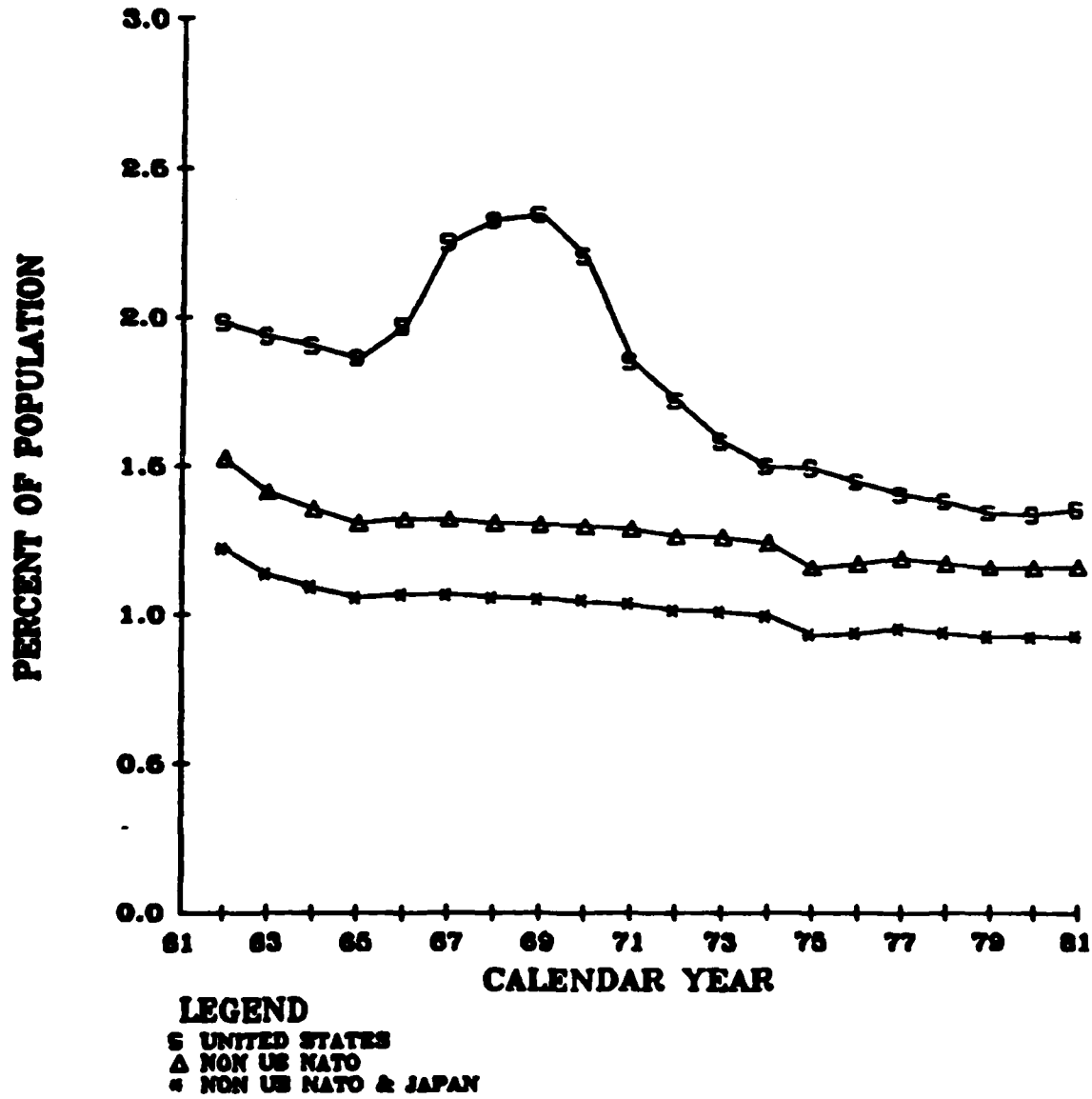


CHART III-11

**Total Active Duty Military and Civilian Manpower
As a Percent of Total Population**

	1971			1981			Total % Change
	%	% of Highest Nation	Rank	%	% of Highest Nation	Rank	71 vs 81
Belgium	1.18	42.5%	8	1.19	54.2%	6	+0.5
Canada	0.59	21.3%	13	0.50	22.9%	13	-15.3
Denmark	1.08	38.8%	10	0.86	39.0%	12	-20.8
France	1.38	49.5%	5	1.32	60.2%	4	-4.1
Germany	1.05	37.8%	12	1.09	49.6%	7	+3.2
Greece	2.30	82.5%	2	2.19	100.0%	1	-4.5
Italy	1.11	40.0%	9	0.98	44.7%	10	-12.0
Luxembourg	0.35	12.5%	14	0.36	16.3%	14	+2.4
Netherlands	1.08	38.7%	11	0.94	43.1%	11	-12.1
Norway	1.20	43.3%	7	1.20	55.0%	5	+0.1
Portugal	2.78	100.0%	1	0.99	45.3%	9	-64.3
Turkey	1.80	64.6%	4	1.75	79.7%	2	-2.8
UK	1.29	46.4%	6	1.03	47.2%	8	-19.9
US	1.85	66.5%	3	1.36	62.0%	3	-26.6
Japan	0.24	8.8%	15	0.22	10.2%	15	-8.4
Non US NATO	1.29	46.4%		1.16	53.1%		-9.8
Non US NATO + Japan	1.04	37.3%		0.93	42.4%		-10.5
Total NATO	1.51	54.2%		1.24	56.6%		-17.7
Total NATO + Japan	1.30	46.7%		1.07	48.8%		-17.7

TOTAL ACTIVE DUTY MILITARY MANPOWER AS A % OF TOTAL POPULATION

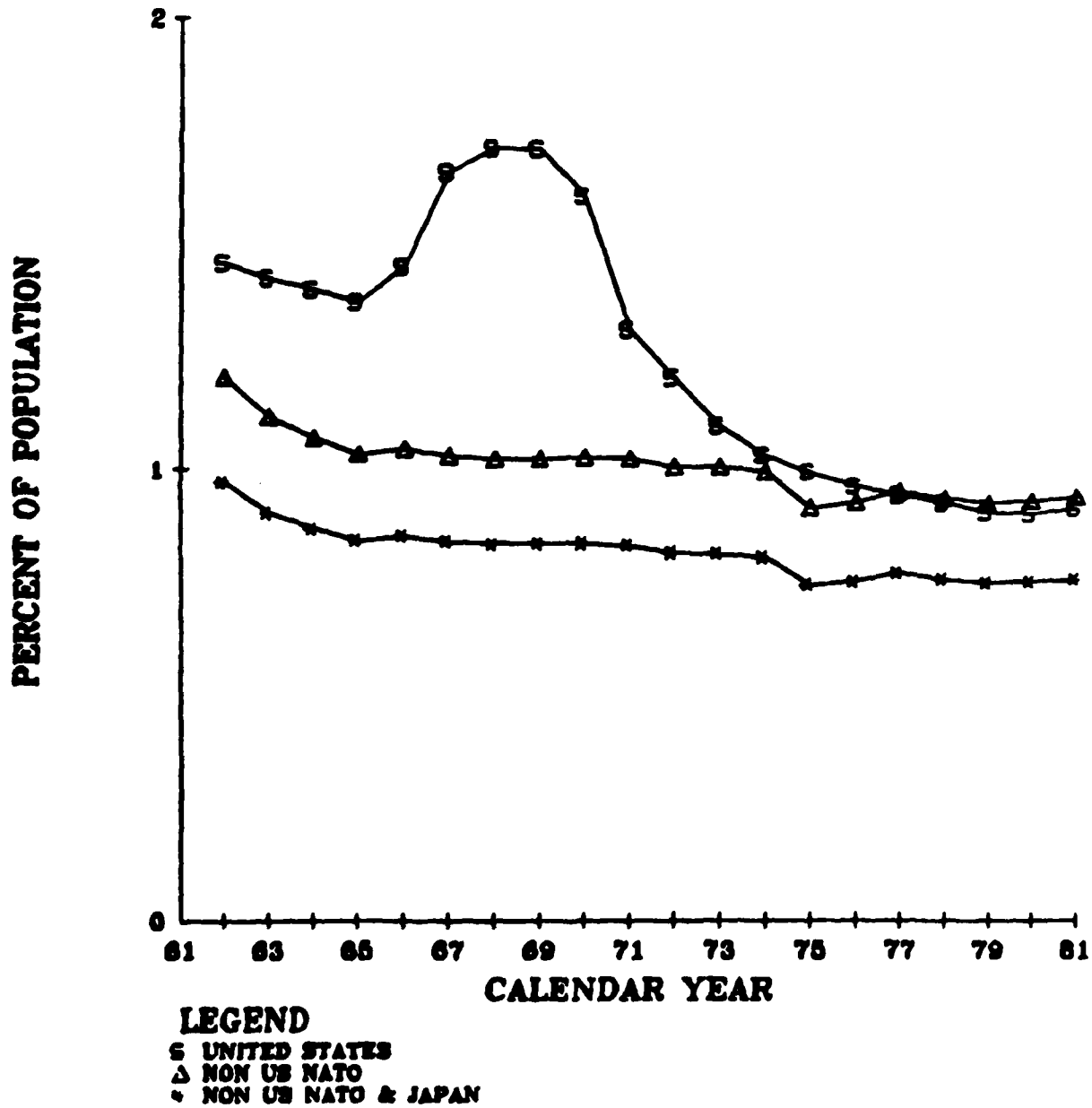


CHART III-13

Total Active Duty Military Manpower
As a Percent of Total Population

	1971			1981			Total % Change
	%	% of Highest Nation	Rank	%	% of Highest Nation	Rank	71 vs 81
Belgium	1.10	40.5%	6	1.11	57.4%	3	+0.5
Canada	0.40	14.8%	13	0.33	17.2%	13	-17.3
Denmark	0.90	32.9%	9	0.64	33.1%	11	-28.6
France	1.11	40.8%	5	1.07	55.2%	4	-4.0
Germany	0.77	28.3%	11	0.80	41.4%	9	+3.8
Greece	2.02	74.3%	2	1.93	100.0%	1	-4.5
Italy	0.97	35.8%	7	0.88	45.7%	8	-9.4
Luxembourg	0.32	11.7%	14	0.30	15.6%	14	-5.5
Netherlands	0.86	31.4%	10	0.76	39.1%	10	-11.8
Norway	0.93	34.2%	8	0.94	48.6%	5	+1.0
Portugal	2.72	100.0%	1	0.88	45.7%	7	-67.6
Turkey	1.70	62.3%	3	1.62	84.0%	2	-4.4
UK	0.69	25.3%	12	0.61	31.5%	12	-11.7
US	1.31	48.1%	4	0.91	47.3%	6	-30.3
Japan	0.22	8.1%	15	0.20	10.6%	15	-7.9
Non US NATO	1.02	37.6%		0.94	48.5%		-8.4
Non US N/TO + Japan	0.83	30.4%		0.75	39.0%		-9.1
Total NATO	1.13	41.7%		0.93	48.0%		-18.2
Total NATO + Japan	0.98	38.1%		0.81	41.7%		-18.1

CHART III-14

Total Active Duty Military and Civilian Manpower and Committed Reserves
As a Percent of Total Population

	1981	
	% of Highest Nation	Rank
Belgium	47.0%	3
Canada	10.9%	13
Denmark	42.2%	5
France	39.8%	6
Germany	39.3%	8
Greece	99.5%	2
Italy	26.7%	11
Luxembourg	6.6%	14
Netherlands	39.6%	7
Norway	100.0%	1
Portugal	27.2%	10
Turkey	44.7%	4
UK	23.5%	12
US	33.4%	9
Japan	4.8%	15
Non US NATO	35.8%	
Non US NATO + Japan	28.0%	
Total NATO	34.9%	
Total NATO + Japan	29.8%	

As used here the term "committed reserves" includes reservists with assignments after mobilization.

Ground Forces

(1) Armored Division Equivalents (ADE)

The ADE (Charts III-15 and A-23) is a relative measure of effectiveness of ground forces based on quantity and quality of major weapons. This measure -- which is widely used within DoD for ground force comparisons -- is an improvement over simple counts of combat units and weapons; however, it does not take into account such factors as ammunition availability, logistical support, training, communications and morale.

All of the non-US nations combined account for slightly over 60% of the NATO and Japan total. The non-US NATO nations account for 56%, while the US, which ranks first among all of the countries examined here, accounts for just under 40%.

(2) Major Equipment Holdings and Modernization Status

We have also examined current holdings by the NATO nations for two major categories of ground forces equipment -- main battle tanks and artillery.

This review reveals that the holdings of all of the non-US NATO nations combined exceed those of the United States by roughly a factor of two for tanks and a factor of three for artillery.

Although the non-US NATO allies combined have a much larger proportion of old-generation equipment than does the United States, they also exceed the United States in absolute quantity of both current and new-generation tanks and artillery.

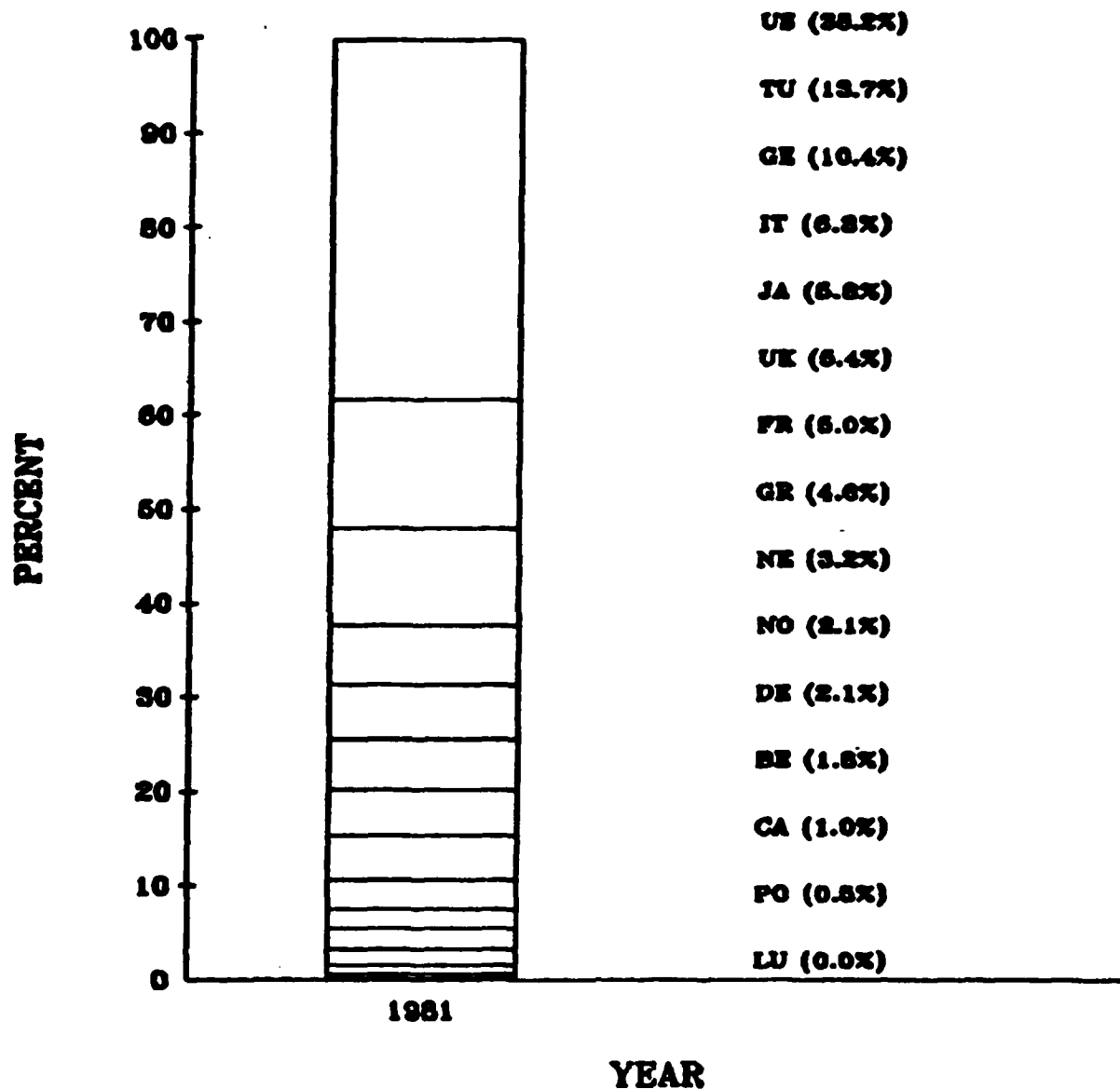
Naval Force Tonnage

Tonnage is a static and aggregate measure of fleet size. For most purposes tonnage provides a more meaningful basis of comparison than number of ships. There is, however, no consideration of quantifiable characteristics such as weapons numbers, effectiveness or reliability, or of qualitative characteristics such as personnel training or morale. Consequently, tonnage data should be considered as giving only a gross indication of naval capability.

Charts III-16 and A-24 show the aggregate tonnage of the US, non-US NATO, and Japan navies excluding strategic missile submarines. The US contribution, as shown by these data, is 64%, compared with 33% for the non-US NATO allies and 36% for the non-US NATO nations and Japan.

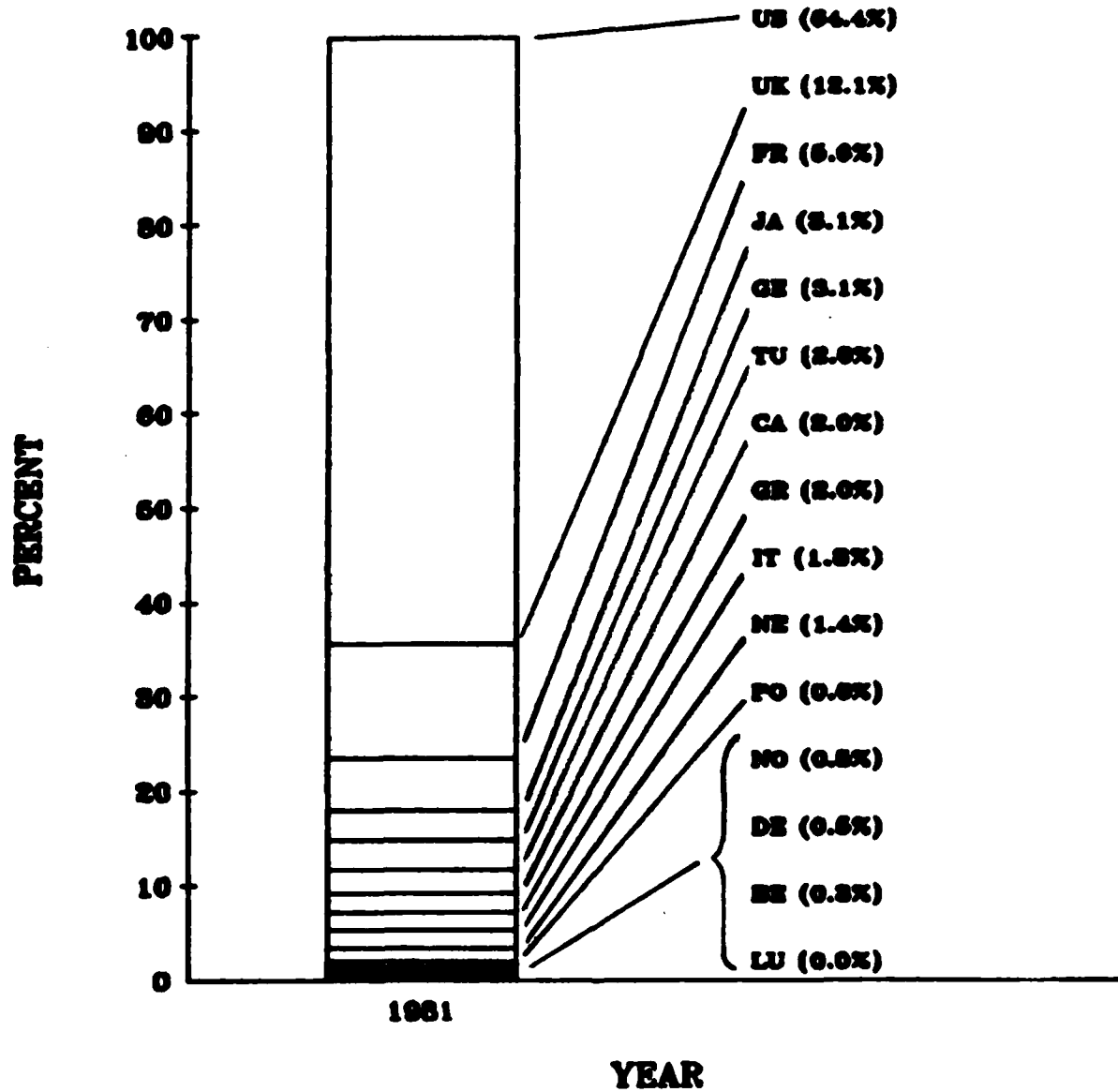
CHART III-15

ARMORED DIVISION EQUIVALENTS (ADES) (PERCENT OF TOTAL)



Each country's value is shown as a percentage of the NATO and Japan total

NAVAL FORCE TONNAGE (PERCENT OF TOTAL) (ALL SHIPS LESS STRATEGIC SUBMARINES)



Each country's value is shown as a percentage of the NATO and Japan total

The data in Charts III-16 and A-24 include ships for some tasks that allied navies do not primarily address, e.g., fleet support, sea-lift and amphibious operations. Charts III-17 and A-25 present data for principal surface combatants -- ships more closely associated with the primary functions of allied navies. As shown by these data, the US contribution is a little over 50%, compared with just over 40% for the non-US NATO nations.

Tactical Air Force Combat Aircraft

The total number of fighter/interceptor, attack, bomber and tactical reconnaissance aircraft of each NATO nation and Japan is shown in Charts III-18 and A-26, along with each country's share of the allied total. Combat capable trainer aircraft are included; electronic warfare aircraft are not.

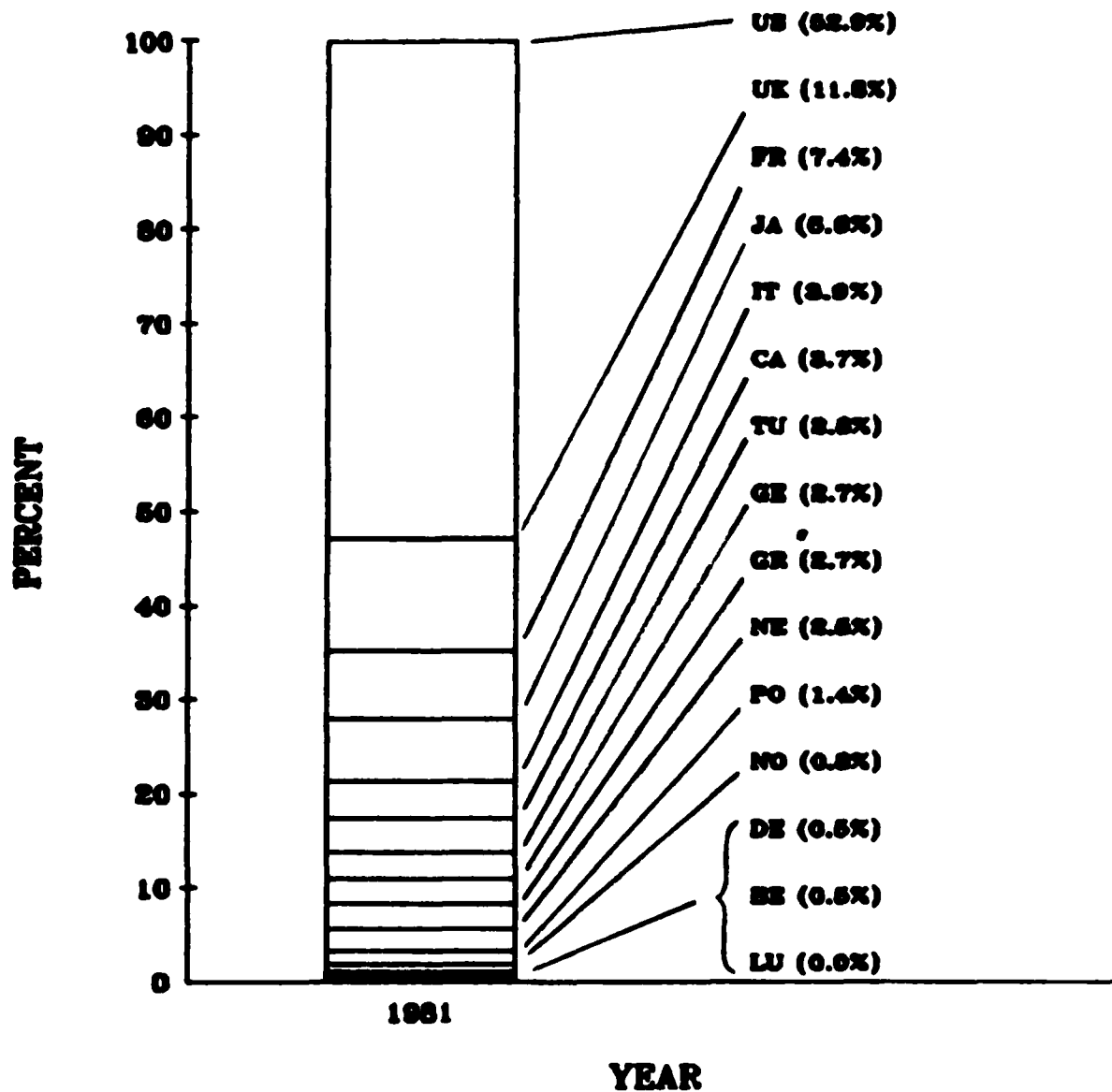
Although no single non-US nation accounts for more than 10% of the NATO and Japan total, the holdings of all of the non-US countries combined make up 52% of the total. The holdings of all of our NATO allies combined account for 48% of the total, the same share as the US.

The US inventory consists roughly of one-third new-generation and two-thirds current-generation aircraft and, thus, is presently somewhat more modernized than the inventory of all of our NATO allies combined, which consists of roughly 10% new, 70% current and 20% old-generation. The US and most of the non-US nations are currently engaged in major programs to modernize their air forces with more flexible and more capable aircraft. As a result, the inventories of the US and most of our allies will by the mid to late 1980s consist of a substantial proportion of new-generation aircraft and few or no old-generation aircraft.

COMPARISON OF SELECTED INDICATORS OF BURDENSARING

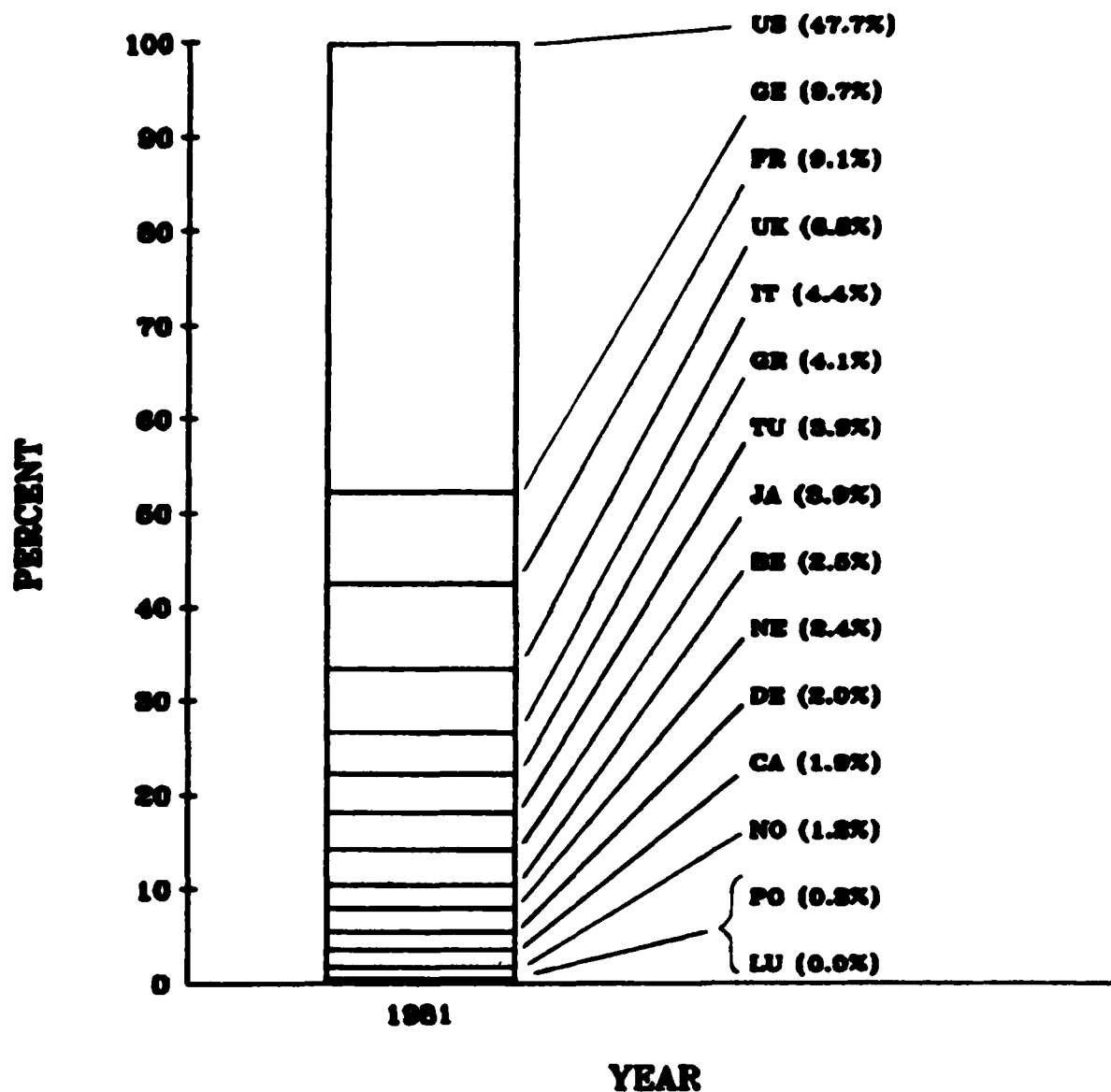
Charts III-19 and III-20 display selected quantitative indicators of ability to contribute and of contribution, respectively. Chart III-21 displays measures that relate the "ability to contribute" measures in Chart III-19 and the "actual contribution" indicators in Chart III-20. To simplify comparisons, most of the indicators in Charts III-22 and III-20 are presented in two ways: (1) each nation as a share of the NATO and Japan total and (2) each nation as a percent of the highest nation. The indicators in Chart III-21 are shown as ratios ("contribution" share divided by "ability to contribute" share). Interpretation of the ratio data in Chart III-21 is straightforward. Simply stated, a ratio of around 1.0 indicates that contribution and ability to contribute are roughly in balance. A ratio above 1.0 indicates that a nation's contribution exceeds its "fair share", whereas a ratio below 1.0 implies that contribution is not commensurate with ability to contribute.

NAVAL FORCE TONNAGE (PERCENT OF TOTAL) (PRINCIPAL SURFACE COMBATANTS)



Each country's value is shown as a percentage of the NATO and Japan total

TACTICAL AIR COMBAT AIRCRAFT (PERCENT OF TOTAL)



Each country's value is shown as a percentage of the NATO and Japan total

Includes fighter/interceptor, attack, bomber, tactical reconnaissance and combat capable trainer aircraft.

A brief description of each of the indicators in Chart III-19 and III-20 follows this discussion. Many of these indicators, along with other supplementary measures, are examined in detail elsewhere in this chapter and/or Appendix A.

Overall Evaluation

The tentative conclusions -- presented below -- take into account (1) the ratios in Chart-21, (2) trends data shown in Chart III-20 in this section and elsewhere in the report and (3) factors that are difficult or impossible to quantify (e.g., host nation support) discussed elsewhere in this document. Among the ratio data, heaviest weight has been given to the defense/prosperity index share ratio (C2) and, to a lesser degree, the defense/GDP ratio (C1) since these combine the most comprehensive indicator of defense effort (total defense spending) and the most comprehensive indicators of ability to contribute -- the so-called "prosperity index" and GDP.

(1) Based on the major quantifiable measures examined for this report, the US appears to be doing somewhat more than its fair share of the NATO and Japan total. For example, the US ratio of defense/GDP share (C1) and defense/prosperity index share (C2) are 1.38 and 1.19 respectively. The US ratios for active manpower/population (C3) and active and reserve/population share (C4) also exceed the norm. US ratios relating armored division equivalents (ADEs) to GDP and prosperity index share (C5, C7) and aircraft to prosperity index share (C6) are somewhat below the norm, whereas its aircraft/GDP ratio (C8) is above the norm. When one takes into account the historical role of the US in NATO and the intangible benefits that it accrues as the acknowledged leader of the Free World (e.g., the US has a greater opportunity to influence world events and shape its own destiny than do the smaller partners) the allies might argue: (1) that the US is getting full value for the extra effort it appears to be expending and (2) that its leadership role obligates it to do more than simply achieve a statistically-computed fair share.

(2) The non-US NATO allies, appear to be shouldering roughly their fair share of the NATO and Japan defense burden. For example, the non-US NATO weighted average ratio of defense/prosperity index share (C2) is slightly above the norm, while the defense/GDP share (C1) is 0.9. All of the remaining ratios for non-US NATO exceed 1.0, some by a wide margin.

(3) Among the non-US NATO nations there are wide differences regarding the amount of burden shared, with some countries doing far less than seems equitable.

(4) Japan, the non-NATO country included in this report, ranks last or close to last on all of the ratio measures surveyed and, thus, quite clearly appears to be contributing far less than its fair share. This validates our major emphasis over the last several years on encouraging the Japanese to increase their defense spending.

CHART III-19

A. Selected Indicators of Ability to Contribute

Rank	(A1) GDP Share	(A2) Population Share	(A3) Per Capita GDP (% of Highest Nation)	(A4) Prosperity Index Share
1	US 42.18%	US 32.83%	NO 100.0%	US 48.98%
2	JA 16.04%	JA 16.86%	US 90.0%	JA 13.79%
3	GE 10.00%	GE 8.81%	CA 83.0%	GE 10.26%
4	FR 8.34%	IT 8.17%	DE 80.7%	FR 8.14%
5	UK 7.28%	UK 8.00%	GE 79.5%	UK 5.98%
6	IT 5.13%	FR 7.71%	FR 75.7%	CA 4.39%
7	CA 4.10%	TU 6.53%	LU 73.7%	IT 2.91%
8	NE 2.06%	CA 3.46%	BE 70.8%	NE 1.88%
9	BE 1.43%	NE 2.04%	BE 70.8%	BE 1.30%
10	DE 0.84%	PO 1.43%	JA 66.6%	NO 1.08%
11	TU 0.84%	BE 1.41%	UK 63.7%	DE 0.88%
12	NO 0.84%	GR 1.39%	IT 43.9%	GR 0.19%
13	GR 0.54%	DE 0.73%	GR 27.1%	TU 0.10%
14	PO 0.34%	NO 0.59%	PO 16.8%	PO 0.07%
15	LU 0.05%	LU 0.05%	TU 9.0%	LU 0.05%
Non US NATO	41.78%	50.31%	58.1%	37.23%
Non US NATO + Japan	57.82%	67.17%	60.3%	51.02%
Total NATO	83.96%	83.14%	70.7%	86.21%
Total NATO + Japan	100.00%	100.00%	70.0%	100.00%

CHART III-20

		B. Selected Indicators of Contribution						
		(B1)	(B2)	(B3)	(B4)	(B5)	(B6)	(B7)
Rank		Defense Spending	Defense Spending (% Change '71 vs '81)	Active Defense Manpower	Active Defense Manpower (% Change '71 vs '81)	Active & Reserve Defense Manpower	Ground Forces ADEs	Tac Air Combat Acft
		--Share--	--71 vs '81--	--Share--	--71 vs '81--	--Share--	--Share--	--Share--
1	US	58.39%	GR 119.72%	US 41.70%	TU 22.60%	US 36.81%	US 38.24%	US 47.72%
2	UK	9.50%	TU 109.24%	TU 10.66%	LU 8.33%	GE 11.61%	TU 13.67%	GE 9.71%
3	FR	8.56%	JA 85.14%	FR 9.52%	NO 5.11%	FR 10.30%	GE 10.43%	FR 9.12%
4	GE	8.31%	LU 81.64%	GE 8.95%	GR 4.93%	TU 9.79%	IT 6.30%	UK 6.76%
5	JA	3.80%	BE 51.09%	UK 7.74%	GE 3.83%	IT 7.33%	JA 5.79%	IT 4.44%
6	IT	3.12%	FR 41.68%	IT 7.48%	BE 2.62%	UK 6.33%	UK 5.35%	GR 4.09%
7	CA	2.03%	GE 27.81%	JA 3.54%	JA 2.28%	GR 4.63%	FR 4.99%	TU 3.90%
8	NE	1.63%	NO 23.85%	GR 2.84%	FR 0.98%	NE 2.71%	GR 4.58%	JA 3.88%
9	BE	1.22%	IT 14.78%	NE 1.80%	CA -5.09%	JA 2.70%	NE 3.16%	BE 2.51%
10	TU	1.08%	NE 14.00%	CA 1.62%	NE -5.14%	BE 2.23%	NO 2.14%	NE 2.41%
11	GR	0.93%	CA 9.27%	BE 1.57%	IT -6.81%	NO 1.97%	DE 2.13%	DE 2.01%
12	NO	0.59%	UK 4.72%	PO 1.33%	DE -18.28%	PO 1.31%	BE 1.78%	CA 1.88%
13	DE	0.52%	DE 4.04%	NO 0.66%	US -18.57%	CA 1.26%	CA 0.99%	NO 1.23%
14	PO	0.30%	US -7.79%	DE 0.59%	UK -19.47%	DE 1.04%	PO 0.46%	PO 0.34%
15	LU	0.02%	PO -22.50%	LU 0.02%	PO -60.14%	LU 0.01%	LU 0.00%	LU 0.00%
Non-US NATO		37.81%	22.98%	54.77%	-3.77%	60.50%	55.98%	48.40%
Non-US NATO + Japan		41.61%	26.87%	58.30%	-3.42%	63.19%	61.76%	52.28%
Total NATO		96.20%	2.27%	96.46%	-10.78%	97.30%	94.21%	96.12%
Total NATO + Japan		100.00%	4.04%	100.00%	-10.37%	100.00%	100.00%	100.00%

CHART III-21

C. Selected Indicators Comparing Contribution With Ability to Contribute							(C6)
Rank	(C1)	(C2)	(C3)	(C4)	(C5)		
	Ratio: Def. Spend. Share/GDP Share (B1 ÷ A1)	Ratio: Def. Spend. Share/ Prosperity Index Share (B1 ÷ A4)	Ratio: Active Def. Manpower/ Pop. Share (B3 ÷ A2)	Ratio: Active & Res. Def. Manpower/ Pop. Share (B5 ÷ A2)	Ratio: ADE Share/ Prosperity Index Share (B6 ÷ A4)	Ratio: Act Share/ Prosperity Index Share (B7 ÷ A4)	
1	GR 1.73	TU 11.02	GR 2.05	NO 3.36	TU 138.98	TU 39.67	
2	US 1.38	GR 4.93	TU 1.63	GR 3.34	GR 24.32	GR 21.74	
3	UK 1.31	PO 4.06	US 1.27	BE 1.58	PO 6.15	PO 4.53	
4	TU 1.29	UK 1.59	FR 1.23	TU 1.50	DE 2.43	DE 2.29	
5	FR 1.03	US 1.19	NO 1.13	DE 1.42	IT 2.17	BE 1.93	
6	PO 0.88	IT 1.07	BE 1.11	FR 1.34	NO 1.98	IT 1.53	
7	BE 0.85	FR 1.05	GE 1.02	NE 1.33	NE 1.68	NE 1.28	
8	GE 0.83	BE 0.94	UK 0.97	GE 1.32	BE 1.36	NO 1.14	
9	NE 0.79	NE 0.87	PO 0.93	US 1.12	GE 1.02	UK 1.13	
10	NO 0.71	GE 0.81	IT 0.92	PO 0.91	UK 0.89	FR 1.12	
11	DE 0.61	DE 0.59	NE 0.88	IT 0.90	US 0.78	US 0.97	
12	IT 0.61	NO 0.55	DE 0.80	UK 0.79	FR 0.61	GE 0.95	
13	CA 0.50	CA 0.46	CA 0.47	CA 0.37	JA 0.42	CA 0.43	
14	LU 0.30	LU 0.32	LU 0.33	LU 0.22	CA 0.23	JA 0.28	
15	JA 0.24	JA 0.28	JA 0.21	JA 0.16	LU 0.02	LU 0.00	
Non-US NATO	0.90	1.02	1.09	1.20	1.50	1.30	
Non-US NATO + Japan	0.72	0.82	0.87	0.94	1.21	1.02	
Total NATO	1.15	1.12	1.16	1.17	1.09	1.11	
Total NATO + Japan	1.00	1.00	1.00	1.00	1.00	1.00	

CHART III-21 (Cont.)

C. Selected Indicators Comparing Contributions With Ability to Contribute
(C7) (C8)

Rank	Ratio: ADE Share/ GDP Share (B6 ÷ A1)	Ratio: Acft Share/ GDP Share (B7 ÷ A1)
1	TU 16.22	GR 7.61
2	GR 8.52	TU 4.63
3	NO 2.56	DE 2.36
4	DE 2.53	BE 1.76
5	NE 1.54	NO 1.47
6	PO 1.34	NE 1.17
7	BE 1.25	US 1.13
8	IT 1.23	FR 1.09
9	GE 1.04	PO 0.99
10	US 0.91	GE 0.97
11	UK 0.74	UK 0.93
12	FR 0.60	IT 0.87
13	JA 0.36	CA 0.46
14	CA 0.24	JA 0.24
15	LU 0.02	LU 0.00
Non-US NATO	1.34	1.16
Non-US NATO + Japan	1.07	0.90
Total NATO	1.12	1.14
Total NATO + Japan	1.00	1.00

Description/Definition of Burdensharing Measures in Charts III-19 and III-20

(1) Measures of Ability to Contribute. There follows a brief description of the measures indicating ability to contribute keyed to appropriate columns in Chart III-19.

A1. Gross Domestic Product (GDP) Share. Reflects the total value of all goods and services produced by a country and is widely used for comparing defense burdens among nations.

A2. Population Share. Provides an indication of the gross human resources available to each nation and, thus, is useful in examining defense manpower contributions.

A3. Per Capita GDP (GDP - Population). A widely accepted measure of economic development and standard of living.

A4. Prosperity Index. This experimental indicator -- developed for this report -- adjusts GDP shares (A1) in proportion to each nation's position on the per capita GDP scale (A3). It is based on the premise that the collective interest of the Free World is best served if "poorer" nations (in terms of per capita GDP) emphasize using their resources on basic domestic programs while the "richer" ones carry a larger share of the collective military burden. Computation entails multiplying GDP shares (A1) by per capita GDP (A3) and normalizing the resulting products so that they sum to 100%. (Computation details are depicted in Chart III-22.) The results are very much like a graduated income tax on nations. For example, if GDP alone is used as an indication of a nation's fair share of the defense burden, Norway's required contribution is 0.8% of the NATO and Japan total, however, because Norway ranks first in per capita GDP, its fair share based on the prosperity index is 1.08% -- about a 30% increase. Similarly, the US prosperity index share exceeds our GDP share (48.98% vice 42.18%), but the percent increase is only 16%, reflecting our lower ranking on per capita GDP. Nations such as the UK, Greece and Turkey that rank relatively low on per capita GDP have prosperity index shares that are below their GDP shares.

(2) Indicators of Contribution. There follows a description of measures indicating contributions to defense.

B1. Defense Spending Share. Figures for all NATO countries (including US) are based on a definition agreed by NATO on what is to be included in total defense spending. This ensures a much higher degree of compatibility than could be achieved using any other available data. Although this is probably the most comprehensive indicator of defense effort, it is important to recognize that it is a measure of input, not output. Also, it does not fully reflect certain important efforts that contribute to defense, e.g., host nation support.

B2. Defense Spending (% Change 1971 vs. 1981). Provides an indication of trends in real defense spending. Figures have been computed using 1981 constant prices and 1981 exchange rates.

B3. Active Defense Manpower Share. Figures reflect peacetime active duty military and civilian manpower. Including civilians helps eliminate comparability problems stemming from different national policies on civilianization of military tasks.

B4. Active Defense Manpower (% Change 1971 vs. 1981). Provides an indication of trends in peacetime active duty military and civilian manpower.

B5. Active and Reserve Defense Manpower Share. Includes peacetime active duty military and civilian manpower plus an estimate of "committed reserves", i.e., reservists with assignments after mobilization.

B6. Ground Forces Armored Division Equivalent (ADE) Share. The ADE is a relative measure of effectiveness of ground forces based on quantity and quality of major weapons. This measure -- which is widely used within DoD for ground force comparisons -- is an improvement over simple counts of combat units and weapons; however, it does not take into account such factors as ammunition availability, logistical support, training, communications and morale.

B7. Tactical Air Force Combat Aircraft. Includes air force fighter/interceptor, attack, bomber, and tactical reconnaissance aircraft.

CHART III-22

Computation of Prosperity Index (1981)

	(1) GDP Share (A1)	(2) Per Capita GDP (A2) (Norway = 100)	(3) (1) x (2)	(4) Prosperity Index (A4) (% Allocation of Col (3))
Belgium	1.43%	70.8%	101.24	1.30%
Canada	4.10%	83.0%	340.30	4.39%
Denmark	0.84%	80.7%	67.79	0.88%
France	8.34%	75.7%	631.34	8.14%
Germany	10.00%	79.5%	795.00	10.26%
Greece	0.54%	27.1%	14.63	0.19%
Italy	5.13%	43.9%	225.21	2.91%
Luxembourg	0.05%	73.7%	3.69	0.05%
Netherlands	2.06%	70.8%	145.85	1.88%
Norway	0.84%	100.0%	84.00	1.08%
Portugal	0.34%	16.8%	5.71	0.07%
Turkey	0.84%	9.0%	7.56	0.10%
UK	7.28%	63.7%	463.74	5.98%
US	42.18%	90.0%	3796.20	48.98%
Japan	16.04%	66.6%	1068.26	13.79%
Non-US NATO			2886.06	37.23%
Non-US NATO +Japan			3954.32	51.02%
Total NATO			6662.26	86.21%
Total NATO +Japan			7750.52	100.00%

ALLIED PERFORMANCE TOWARD ACHIEVING NATO'S 3% REAL GROWTH GOAL

The following discussion addresses the Congressional request for estimates of real growth in defense spending for each of our NATO allies. Chart III-23 displays current country-by-country estimates of the percent change in real defense spending for 1979 through 1982. These figures -- some of which are still subject to change -- show real increases in defense spending for most countries, and weighted average increases for all non-US NATO nations combined of 2.2% for 1979, 2.7% for 1980, 2.7% for 1981, and between 1.0% and 1.6% for 1982.

Four of our allies (Luxembourg, The Netherlands, Portugal and the UK) had increases in the region of 3% or more in 1979. (NATO interprets "in the region of 3%" as any increase of 2.8% or greater.) The list of allies reporting such increases in 1980 includes six nations (Canada, France, Italy, Luxembourg, Portugal and the UK). Six nations (Canada, France, Germany, Greece, Luxembourg, and The Netherlands) were in the 3% region for 1981, while Norway came close with an estimated increase of 2.7%.

Estimates reported to date for 1982 indicate that three or four countries (Canada, Luxembourg, the UK, and possibly France) achieved increases in the 3% region.

CHART III-23

NATO COUNTRY DEFENSE SPENDING a/ b/
 Percent change from Previous Year in Constant Prices (Excluding Inflation)

	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>
Belgium	2.2	2.0	0.9	-6.6
Canada	-0.9	5.1	3.1	3.0
Denmark	0.2	0.7	0.4	0.6
France	2.5 <u>c/</u>	3.7 <u>c/</u>	3.6 <u>c/</u>	1.5/3.0 <u>c/</u>
Germany	1.8	2.3	3.2	-0.2
Greece	-2.9	-8.4	22.9	-5.0/-1.1
Italy	2.6	4.9	-0.5	2.7
Luxembourg	3.5	16.3	4.8	4.0
Netherlands	4.2	-1.7	3.3	-1.9/2.1
Norway	1.9	1.8	2.7	2.3
Portugal	2.9	10.1	1.5	-2.9
Turkey	2.6	2.0	1.8	-7.2
UK	3.0	2.8	1.3	3.8
US	3.4	4.9	4.1	7.5
<hr/>				
Non-US NATO <u>d/</u>	2.2	2.7	2.7	1.0/1.6
NATO Total <u>d/</u>	3.1	4.0	3.6	5.2/5.5

a/ All of the figures depicted in this table are based on the NATO definition of defense spending and are the best estimates that can be made on the basis of information now available.

b/ National fiscal years agree to calendar years except as follows: Canada and UK (April-March), US (October-September). Turkish data through 1981 are based on a March-February fiscal year. In 1983, Turkey will convert to a January-December fiscal year. The Turkish figure for 1982 covers a 10 month (March-December) transition year.

c/ DoD estimate

d/ Non-US NATO and NATO totals reflect weighted average growth rates developed using 1981 constant prices and exchange rates.

IV. EFFORTS TO ELIMINATE DISPARITIES AND TO IMPROVE ALLIED PERFORMANCE

Each nation of NATO views its contribution and responsibilities toward the mutual defense effort in light of its understanding of the common threat. Thus, though NATO nations publish a document which describes a commonly perceived threat in terms of the size of Warsaw Pact forces opposing NATO, there is less than full agreement among all nations on the purpose for that force or the intent of the Soviets.

There are also a significant number of European nations that embarked upon national policies which are leading them towards a social welfare state. Despite a recognition on the part of some individual governments that there is an ever increasing threat from the East, very few national publics now will permit any sudden turn away from the social progress they view as having been achieved. While some nations might be amenable to modest increases in defense spending, there are virtually no governments which could survive substantial increases in defense spending at the expense of the social program. Thus, if defense expenditures are to be increased, the additional costs must be borne by added taxation or increasing revenues by some other fashion.

While not within the purview of this report to develop or suggest long-term economic policies for various nations, it can be said that as a whole the Western economies are under stress at this time and the major concern of all Western governments seems to be in getting their economies under control with some positive signs of ending this period of stagnation and/or recession. As such, European leaders warn that the prospects are very dim for any substantial increases in defense spending in the near-term.

To be sure, there are some areas where some flexibility might be possible. We believe that NATO infrastructure funding is one area where nations might be willing to make a larger contribution, as that commonly funded program can and should be portrayed as one where each nation gets a synergistic improvement from its contribution.

Another area for pursuit is that of taking advantage of the vast technical competence of our industrial might. There are emerging technologies which could provide what some would describe as quantum improvements in capability. It is with that goal in mind that the Defense Department spearheaded the drive to get recognition by the Heads of State and Governments in June 1982 of the potential advantages which lie ahead if properly developed and pursued in consultation with our allies. One note of caution might be sounded at this point: high technology comes at very expensive price tags. With European economies generally in a sad state, it is highly doubtful there will be any rush of nations to sign up for high-cost programs without some other compensations.

Burdensharing is a concept most difficult to define. Through a wide variety of indices over a period of time, a nation's demonstrated capacity to contribute in proportion to its capabilities can be measured. Pressures applied from within the Alliance, both at NATO Headquarters and in bilateral contacts, should be kept up; but US officials should not expect substantial increases in defense spending among the allies in the near term. We should, however, be able and willing to pursue increased infrastructure funding and develop a willingness, at least among some of the industrial nations, to explore and develop some new weapon systems which will significantly alter the present unfavorable trends in defense capabilities.

A. NATO LONG-TERM DEFENSE PROGRAM

As a result of a US initiative, the NATO Heads of State and Government at the London Summit in 1977 agreed to develop a long-term defense program consisting of a series of carefully selected priority programs of national or multilateral contributions designed to remedy critical deficiencies in NATO defenses over the mid-term (1979-84) and the long-term (1985-1990). The nine conventional program areas selected were readiness; reinforcement; reserve mobilization; maritime posture; air defense; electronic warfare; rationalization including standardization and interoperability; consumer logistics; and communications, command and control. The nine programs were developed by independent international task forces consisting of NATO civilian and military officials who were directed to project at least ten years in the future, to establish priorities, to identify cooperative development and production projects which could be common-funded and to take relevant new technology into account.

The resultant NATO Long-Term Defense Program (LTDP), agreed to by NATO Heads of State and Government at the Washington Summit in 1978, marked a significant milestone for NATO through its projection of Alliance defense planning into a longer-term framework and its emphasis on cooperative efforts to strengthen Alliance defense through the 1980s. It provided a blueprint for the development of national defense plans and programs with the objective of improving NATO's collective defense to cope with the challenge to Alliance security posed by the continuing momentum of the Warsaw Pact military buildup.

Most of the LTDP measures have been incorporated into the NATO force goals and over 70 percent are progressing satisfactorily. The status of implementation will be reported to Ministers in NATO's Annual Defense Review of National Force and Financial Plans.

Certain unique features established for management of the LTDP follow-through have proven very beneficial and NATO has agreed to continue them in future Alliance defense planning. First is analysis by broad functional

areas. Independent monitors (high-level NATO military and civilian officials) report directly to the Secretary General on the progress achieved by each nation in implementing the LTDP measures in each of the nine functional program areas. In addition, each monitor examines his functional area as a whole, identifies issues and problem areas, and recommends remedial action. We hope to be able to use these independent analyses in our future assessment of allied burdensharing and to examine the key issues and recommended remedial actions for possible areas for increased allied participation.

B. JAPANESE PERFORMANCE TOWARD ACHIEVING SELF DEFENSE (INCLUDING SEA-LANES TO 1000 MILES)

Despite sometimes impressive annual growth-rates in defense spending (almost 8 percent average real growth rate in the 1970s and at least 3 percent real growth in the 1980s), Japan started from a very low base and has never been willing to address defense expenditures from the point of view of actual requirements. The 1983-1987 Mid-Term Defense Plan (MTDP) is a good example. Japan's Ground Self-Defense Force has obsolete equipment. Its Ground, Maritime and Air Forces all have only token levels of ammunition, making them unable to sustain themselves in combat and therefore unable to defend Japanese territory against any serious incursion. The Air and Maritime Forces are too small to provide for defense against the large air threat which proximate Soviet Far East Forces pose and to protect the sea-lanes to 1,000 miles, respectively. The latter mission was put forth by Prime Minister Suzuki as national policy in 1981 and has been reaffirmed as such by his successor.

The 1983-87 MTDP was drafted in 1981. Although it followed the Suzuki announcement, the MTDP makes no mention of, or provisions for, a SLOC protection force. The MTDP is inadequate to make Japan's present forces sustainable and to build the requisite levels of Air and Maritime Forces.

Until the advent of Prime Minister Nakasone's Cabinet in late November 1982, the government of Japan maintained that the MTDP would allow Japan to accomplish the goals of the 1976 National Defense Program Outline (NDPO). Ironically, the MTDP itself states that the world situation has greatly changed since 1976 and that the international situation has seriously worsened. The 1976 NDPO did not address the serious issue of sustainability of Japan's defense forces, the requirement for sea-lane defense protection, and has otherwise also grown seriously out of date. The new Prime Minister has clearly affirmed the Japanese people's strong concern over the growing Soviet threat.

He also has spoken forthrightly on the need for Japan to make "appropriate, necessary defense efforts in view of the efforts of the United States and the other NATO countries in response to the Soviet buildup." The United States has great hopes that the Prime Minister will translate his words into action and give Japan true self-defense capability,

including for its sea-lanes by 1990. The goal of adequate self defense was formally stated as Japan's national policy in 1956, but is yet to be achieved.

C. HOST NATION SUPPORT (HNS) INITIATIVES

HNS is necessary because the US has critical force structure shortages in the combat service support units -- largely logistic -- that give US forward-deployed and early-reinforcing combat units their initial and sustained combat capability. Improvements in the US ability to deliver more combat forces to Europe in an emergency will increase these shortages. Moreover, the possibility of the US having to commit forces to defense interests in Southwest Asia or elsewhere means these support deficiencies could be exacerbated.

Germany. After two years of negotiation, the US and Germany signed a Wartime Host Nation Support (WHNS) Agreement on April 15, 1982. Under the terms of this agreement, Germany will provide approximately 93,000 Reservists in support of US forward-deployed and reinforcing troops in Europe during crisis or war. This military support includes security of US Air Force facilities; support of US Air Force elements at collocated operating bases; airfield damage repair; security of US Army facilities; transport, trans-shipment and resupply services; casualty evacuation; prisoner-of-war handling; and decontamination of personnel and equipment.

In addition, Germany will provide significant support to US forces from the civilian sector. This support includes transport of personnel, materiel, ammunition, and petroleum; maintenance and repair services; subscriber telephone and teletype equipment; facilities for wartime stationing; expendable supplies; exemption from military service for the civilian work force of US forces and of contractors supporting US forces; and materiel mobilization augmentation (vehicles, construction and depot equipment).

The costs of the program will be shared equitably by the US and Germany, subject to enabling legislation and the availability of funds. Germany will bear the personnel expenses and personal equipment costs associated with the training organizations of the Federal Armed Forces. The US will bear the costs of the materiel investments, to the extent that they are not incurred in connection with the military command, logistic, and training organizations of the Federal Armed Forces; salaries for the required civilian work force; and other operating costs. The US also will pay for all goods and services requested and received by its forces during crisis or war.

Both governments will attempt to minimize the costs associated with the program, through use of existing facilities and mobilization of the majority of equipment from the German civilian economy. Should there be a shortfall in available facilities, both governments will assign high priority to efforts to obtain funding within the NATO Infrastructure Program. Lease, acquisition or construction of additional facilities

not funded by NATO will be borne equitably in a manner that reflects the cost-sharing principles outlined above.

Over the five-year implementation period, the WHNS program peacetime costs (in FY 1983 dollars) total approximately \$580 million. During this period, Germany will pay slightly more than 50% of the costs (approximately \$295 million to the \$285 million US share). After the initial implementation period, Germany will pay about 60% of the steady-state annual recurring costs. On the US side, however, the Continuing Resolution Authority (CRA) signed into law by the President on December 21, 1982 does not include funds for the US share of 1983 implementation costs.

Belgium. The US and Belgium have been working closely to develop more extensive arrangements for the provision of facilities and services to US forces in wartime. Belgium has agreed to designate several collocated operating bases (COBs) and to host storage sites, including some especially designed for ammunition storage.

Details of support for the lines of communication in Belgium are being negotiated. Negotiations have focused on the completion of a detailed Joint Support Plan (JSP) and a DoD initiative to assure support for an expected US Ten-Division D-Day force. A Joint Statement of Principles concerning future HNS was signed on October 20, 1981. The Joint Support Plan was signed on November 23, 1982. In addition, the US and Belgium have signed several COB agreements, which provide for facilities, real estate, and services for aircraft and crews.

The Netherlands. The Netherlands provides general support for storage, procurement of supplies and equipment, and maintenance and utilities for US forces. A Joint Statement of Principles concerning HNS was signed on August 11, 1982. Bilateral LOC Agreements concluded with the UK and the US are adequate for the reception and onward movement of external reinforcements for Allied Command Europe.

Luxembourg. In 1981, Luxembourg and the US signed a Memorandum of Understanding on HNS which outlined, in broad terms, US wartime HNS requirements in Luxembourg. Current negotiations focus on the completion of a Joint Logistics Support Plan which details US wartime HNS requirements in Luxembourg.

Bulk Petroleum Support. One area of HNS that has received special attention in recent years is that of bulk POL support. A series of negotiations between the United States and a number of European countries has resulted in agreements whereby the European nations will provide varying degrees of bulk-petroleum-supply support to US forces in contingency situations. These arrangements are not intended to meet all US requirements in such circumstances, but rather to facilitate rapid reinforcement. The willingness of our allies to provide POL support is most welcome.

Turkey. The US-Turkey COB MOU was signed in November 1982. Beginning in January 1983, US and Turkish staffs will develop base-by-base technical arrangements to identify facilities for sharing, specific host responsibilities (e.g., airbase security and services), and operational support shortfalls.

D. COMMONLY-FUNDED NATO PROGRAMS

Shared and Commonly-funded Programs

In NATO, cost-sharing in various forms by the member countries goes hand-in-hand with the broadest possible cooperation for common defense. The theme of one country, one vote is the basis for unanimously agreed programs for common-funding by the whole membership. With few exceptions, this common-funding theme applies to the NATO Infrastructure Program; the NATO Military Budget for Operations and Maintenance (O&M) of NATO Military Headquarters and Agencies; and the NATO Civil Budget for O&M of the NATO Headquarters, the NATO building and small civil programs.

In the early 1950s, NATO country cost-shares of the basic common-funded programs were heavily influenced by comparative abilities of nations to contribute. More recently, the additional element of "degree of national interests" influences greatly whether and to what extent a country agrees to contribute to cost-shared NATO programs, short of common-funding by all. In some joint ventures, the overriding interests of some countries in having a project adopted will cause them to agree to inordinately high cost-shares (e.g., NATO Tornado aircraft, AWACS, etc).

The Infrastructure Program covers the capital costs of NATO commonly-funded and standardized military facilities for wartime NATO common use, joint use by two or more countries, or by the forces of one country in the NATO common interest. The products of this program, since 1950, are the most tangible evidence of NATO cooperation. Its benefits are shared by all participating countries in terms of use by their forces, economic gains from their presence and operation, and commercially through competition for the labor-intensive construction work and equipment involved.

Originally, during the Marshall Plan days, the US share was over 43%. Currently, the US contribution is 27% and 12 other countries provide the remaining 73%. However, when France participates on air defense projects, the US share is 24% and 13 countries pay the other 76%. The country cost-sharing percentages are normally established, or rather usually reaffirmed, every five years when NATO Defense Ministers decide upon multi-year program levels.

The present five-year ceiling for 1980-1984 was compromised upon the level of 1 billion Infrastructure Accounting Units (IAU), now valued at \$3.159 billion. In terms of US annual obligations, the US currently budgets annually for expected NATO Infrastructure funding authorizations (obligations) at a level of \$300-350 million for the US share. The remaining 70

plus percent is obligated and paid for by the other NATO countries. Spain's participation will probably begin in the 1985-1989 period when that future program ceiling is established. The 1 billion IAU ceiling has proved to be totally inadequate for the current five-year infrastructure requirement. The US is urging a NATO decision for a substantial increase in June 1983.

The second common funding category, for recurring Operations and Maintenance (O&M), is the NATO Military Budget Committee's (MBC) cost-sharing for the International Military Headquarters and Agencies. This program also provides for common-funding the peacetime O&M utilization costs of certain infrastructure built systems and facilities (communications, POL Pipeline, War Hqs, etc.) which are totally for NATO common use. The US share of this MBC budget is currently about \$100 million yearly. It is important to note, however, that most infrastructure built facilities are for the use of one or more NATO country's committed forces. Each using country pays unilaterally for all such O&M costs for each facility.

The third and only other existing NATO common-funding program is the NATO Civil Budget Committee's (CBC) budget. It provides for the O&M costs of the NATO Headquarters building in Brussels, Belgium, its personnel, and a few NATO non-military activities. The CBC program is financed from non-defense budgets by all 15 NATO countries, and they should be joined by Spain in the near future. The current US share of 24% is budgeted by the Department of State. The total CBC budget was about \$62 million in 1982.

There have been numerous other NATO cooperative financing ventures, but their funding is selective and involves only those countries who have special reasons to participate and share the costs. These include:

(1) Consortia financing programs, which usually involve coproduction or joint service ventures. They are developed by the participating countries and appropriately endorsed by NATO. Country inputs equate directly to the products for its benefit that each country expects. This consortium approach has been used for: (a) design/co-production of weapons and equipment; (b) to procure, store and distribute spares, replacement components and supplies; and (c) to operate installations that serve only directly participating/paying countries (examples: NATO Maintenance and Supply Agency (NAMSA) in Luxembourg, and the NATO HAWK Production and Logistics Organization (NHPLO) in Paris, France).

(2) Special innovations, like the multi-country funding of both capital costs and O&M costs for the NATO Airborne Early Warning and Control System (AEW&CS). Since the cost-sharing percentages of country contributions to such ventures are different from those established for common funding programs, they must be administered as separate entities.

All categories of NATO cost-sharing have served the US well. Although total US defense expenditures continue to exceed those of all the other NATO countries together, the US contribution to all of the common-funding programs (i.e., Infrastructure, MBC, CBC) averages 24 to 30 percent.

Cost Sharing More Military Infrastructure Facilities

The NATO allies have agreed to consider in the Spring of 1983 the need for a substantial increase in the Infrastructure Program ceiling. Toward this end, NATO Ministers of Defense have tasked the Infrastructure Committee to develop a basis for consideration of an addition to the 1983 Slice 34 program and for an increase in the current five-year program ceiling, for decision in June 1983. These agreements accord with the scheduled Mid-Term Review that was one of the provisions agreed when the Ministers compromised and specified a ceiling of 1 billion Infrastructure Accounting Units (IAU or \$3.159 billion) for the current five-year period (1980-84) in May 1979.

The current 1 billion IAU ceiling has fallen far short of current NATO military requirements, including many projects for the use of US forces, but the allies now appear to be ready to redress this shortage. We expect the increase to be considered to range between 20% and 40% (i.e., 200 million to 400 million IAU).

E. BURDENSARING AND NATO DEFENSE PLANNING

Decisions on the size, quality and deployment of national forces represent by far the most important aspects of burdensharing in NATO. These decisions are national decisions, although NATO sets force goals for nations and monitors national responses to NATO force goals. This process of establishing NATO force goals and reviewing national implementation of these force goals is part of the NATO Force Planning System; it represents the one activity in which the aspect of NATO burdensharing is most directly considered. In this activity, such factors as defense expenditures per capita, gross domestic product per capita, percentage of labor pool devoted to defense, and other relevant statistics are considered against the current and projected economic conditions of the countries concerned. These factors are considered in multilateral fora -- first in the Defense Review Committee, next by Defense Planning Committee Permanent Representatives, and finally by Defense Planning Committee Ministers, in their annual action on national force plans -- on the basis of very detailed examination of national plans, including comparison of level of national effort with that of other allies.

F. ALLIED SUPPORT FOR THE PROTECTION OF VITAL WESTERN INTERESTS IN SWA

NATO Ministerial Communiques in the Spring and Fall of 1982, as well as the NATO Summit Declaration of June 1982, make clear allied recognition of the importance of out-of-area developments to the Alliance. During 1982, we worked closely with our NATO allies in the development of specific steps which they can take to assist in the defense of vital western interests in Southwest Asia. One of the most significant contributions the allies can make is to compensate for US forces which might be diverted from the defense of NATO to deal with a Southwest Asian contingency. The

NATO Military Authorities are in the process of developing their recommendations for compensatory measures. We expect these to form the basis for specific compensatory measures to be included in the national force goals of the allies.

Since the Soviet invasion of Afghanistan in December 1979, the allies have taken a number of actions in connection with Southwest Asia. These include:

(1) Following the Soviet invasion of Afghanistan, NATO developed a series of measures to improve alliance defense and give a clear signal of alliance resolve to the Soviets. For the most part, these measures called for the acceleration of measures already in the 1981-86 NATO Force Goals and in the Long-Term Defense Program. They included such areas as acceleration of the introduction of major equipment, readiness, reinforcement, reserve mobilization, war reserve stocks, maritime measures, air defense, host nation support, communications, electronic warfare, and aid to Portugal and Turkey. Many of these measures were implemented and most NATO nations participated in their implementation.

(2) The UK and France, and more recently Italy, have contributed directly to stability in the SWA area through deployment of forces to the region.

(3) Some NATO allies maintain continuing security relationships in SWA: The UK maintains close ties and provides advisors in Oman. France maintains a close security relationship with Djibouti and maintains forces there.

(4) The UK has provided support through arrangements for US use of Diego Garcia.

(5) Eight nations have contributed to US RDJTF annual exercises in Southwest Asia in 1980, 81 and 82, through provision of overflight rights and enroute access and support for deploying US forces.

(6) Ten NATO nations with suitable vessels have contributed to the commitment of 600 allied commercial ships to supplement US shipping in the reinforcement of NATO-Europe. These ship commitments would make possible a greater US effort in Southwest Asia should a SWA action and the need for reinforcement of Europe become simultaneous.

(7) Nine NATO nations with suitable aircraft have committed allied civil long-range cargo aircraft and are in process of committing civil wide-body passenger aircraft to supplement US aircraft in the reinforcement of NATO Europe. These European aircraft also provide the US greater flexibility with respect to a SWA deployment.

APPENDIX A

This appendix provides a detailed comparison of US and allied efforts for the following burdensharing indicators: gross domestic product (GDP), population, per capita GDP, per capita defense spending and defense spending by resource category. Selected charts addressing other major burdensharing indicators are also included.

This material supplements and should be examined in conjunction with material in the "Burdensharing Measures and Performance" section of Chapter III.

Gross Domestic Product (GDP)

Charts A-1, A-2, and A-3 display the total gross domestic product of each of the NATO nations and Japan and each nation's share of the NATO and Japan total. GDP reflects the total value of all goods and services produced within the national borders of a country in a given year and, thus, is a good indicator of magnitude and rate of growth of a country's economy.

(1) The magnitude of GDP varies greatly among the nations displayed here -- ranging in 1981 from \$4B for Luxembourg to \$2.9 trillion for the US. In 1981 the US accounted for 42% of the NATO and Japan total and 50% of the NATO total, which, based on 1981 exchange rates and 1981 constant prices, were about the same shares we had in the early 1970s.

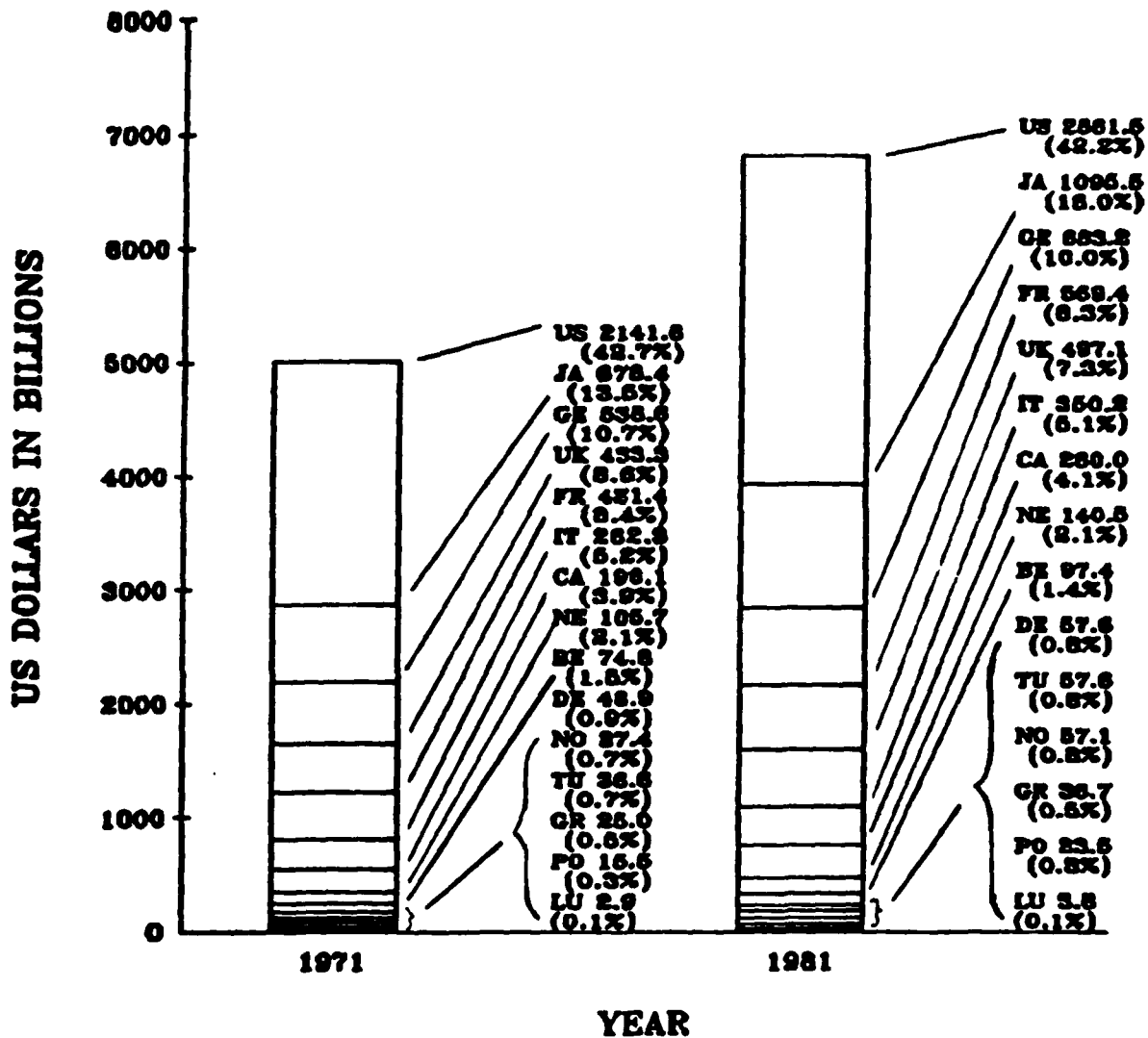
(2) It is particularly significant to note that the US share of GDP is substantially greater than that of any other individual nation. Japan, the second largest nation, accounts for only 16% of the total and Germany, the third largest, 10%.

(3) Among the non-US NATO nations, Germany, France, and to a lesser degree the UK, dominate the field with Italy close behind. Canada, The Netherlands and Belgium constitute a cluster of nations accounting for between 1 1/2 and 4% of NATO and Japan GDP, while the remaining six NATO nations (Denmark, Turkey, Norway, Greece, Portugal and Luxembourg) account, individually, for 1% or less and combined make up less than 5% of the total.

(4) An examination of real GDP growth provides some interesting insights regarding economic activity during the past decade. Between 1971 and 1981, US real GDP grew 35% compared with around 30% for the non-US NATO nations and an impressive 62% for Japan. Among the non-US NATO nations, Turkey, Norway, Portugal and Greece achieved the highest growth, while the UK with a 15% increase lagged behind all nations. Denmark and Germany -- countries that are typically perceived from this side of the Atlantic as having highly prosperous economies -- managed real growth increases for 1971-1981 of only 23% and 27% respectively, placing them close to last on the basis of GDP real growth during the 1970s.

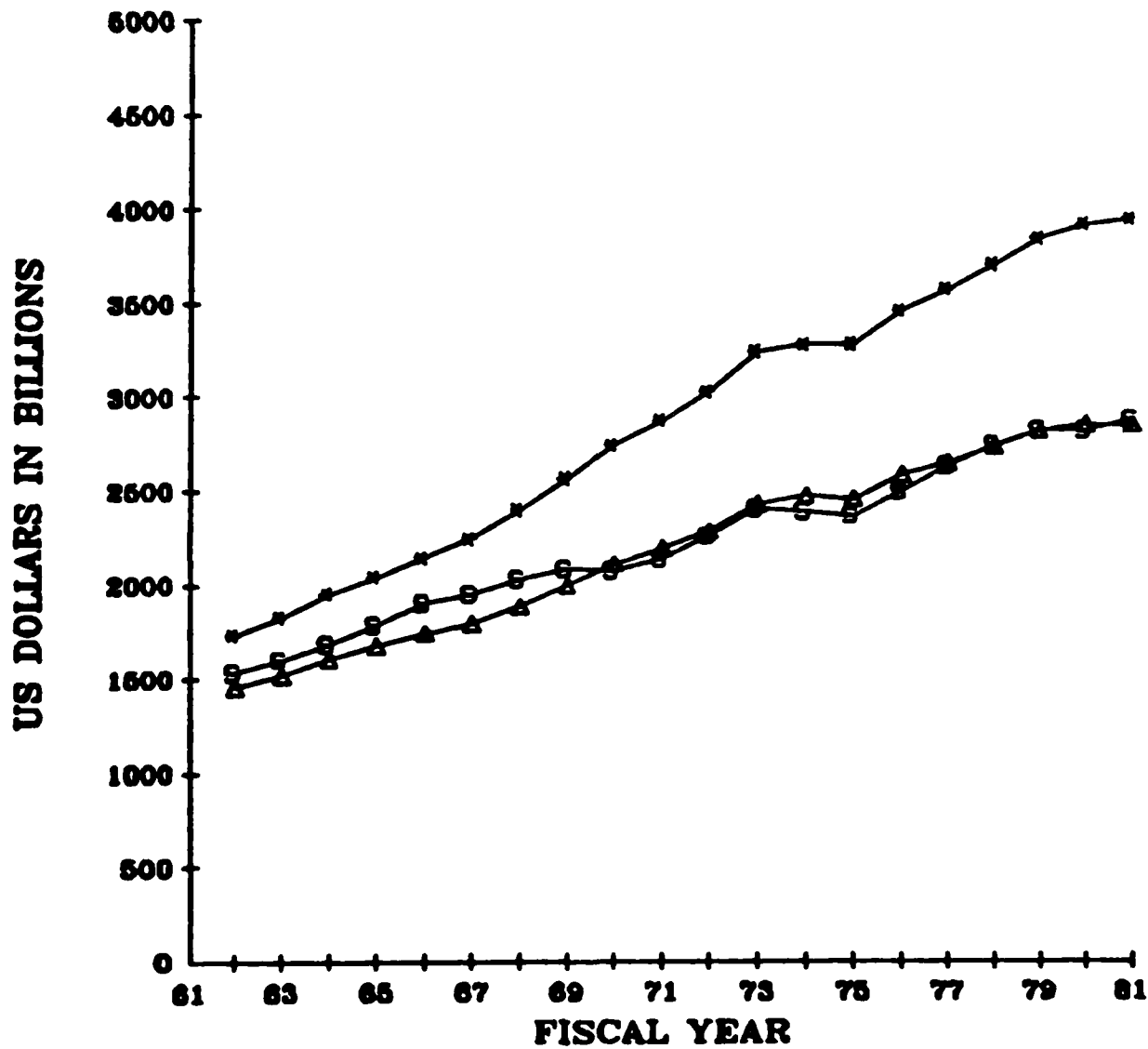
CHART A-1

**TOTAL GROSS DOMESTIC PRODUCT
US DOLLARS IN BILLIONS
(1981 CONSTANT DOLLARS - 1981 EXCHANGE RATES)**



Each country's value as a percentage of the total is enclosed in parentheses

**TOTAL GROSS DOMESTIC PRODUCT
US DOLLARS IN BILLIONS
(1981 CONSTANT DOLLARS - 1981 EXCHANGE RATES)**



LEGEND

- UNITED STATES
- Δ NON US NATO
- * NON US NATO & JAPAN

CHART A-3
GROSS DOMESTIC PRODUCT
1981 Constant Dollars in Billions - 1981 Exchange Rates

	1971			1981			Total % Change
	---\$---	% of NATO & Japan Total	Rank	---\$---	% of NATO & Japan Total	Rank	71 vs 81
Belgium	\$ 75	1.5%	9	\$ 97	1.4%	9	+30.1
Canada	\$ 196	3.9%	7	\$ 280	4.1%	7	+42.7
Denmark	\$ 47	0.9%	10	\$ 58	0.8%	10	+22.8
France	\$ 421	8.4%	5	\$ 569	8.3%	4	+35.1
Germany	\$ 539	10.7%	3	\$ 683	10.0%	3	+26.8
Greece	\$ 25	0.5%	13	\$ 37	0.5%	13	+46.8
Italy	\$ 262	5.2%	6	\$ 350	5.1%	6	+33.5
Luxembourg	\$ 3	0.1%	15	\$ 4	0.1%	15	+27.6
Netherlands	\$ 106	2.1%	8	\$ 140	2.1%	8	+32.9
Norway	\$ 37	0.7%	11	\$ 57	0.8%	12	+52.7
Portugal	\$ 15	0.3%	14	\$ 23	0.3%	14	+51.8
Turkey	\$ 37	0.7%	12	\$ 58	0.8%	11	+57.2
UK	\$ 433	8.6%	4	\$ 497	7.3%	5	+14.7
US	\$ 2142	42.7%	1	\$ 2882	42.2%	1	+34.6
Japan	\$ 678	13.5%	2	\$ 1096	16.0%	2	+61.5
Non US NATO	\$ 2197	43.8%		\$ 2854	41.8%		+29.9
Non US NATO + Japan	\$ 2875	57.3%		\$ 3949	57.8%		+37.4
Total NATO	\$ 4338	86.5%		\$ 5735	84.0%		+32.2
Total NATO + Japan	\$ 5017	100.0%		\$ 6831	100.0%		+36.2

Population

Charts A-4, A-5 and A-6 depict mid-year population and thus, provide a gross indication of the human resources available to each of the nations examined in this report. Population has two facets of particular importance from a defense burdensharing viewpoint. On the one hand, it indicates, broadly, the size of the pool from which a nation must draw its defense manpower. From this standpoint, a large and fast growing population would be a positive sign. On the other hand, a large and growing population also can mean additional requirements for those government services and consumer goods that compete with defense for the taxpayers' dollars and for industrial capacity.

(1) This indicator exhibits many of the same general patterns noted earlier for gross domestic product (GDP). As with GDP this measure varies widely among the nations shown here, ranging in 1981 from 0.4M for Luxembourg to 230M for the US.

(2) Our 1981 share of the NATO and Japan total (32.8%) is roughly double that of Japan, the second largest country. Germany, which ranks third, has 8.8% of the total and is followed closely by Italy, the UK and France which account for 8.2%, 8.0% and 7.7%, respectively.

(3) Although the total percent change in population growth between 1971 and 1980 varies from +0.6% for the UK and Germany to over +25% for Turkey, there have been no dramatic changes in national shares of the total during the 1971-81 timeframe.

Per Capita Gross Domestic Product

Per Capita GDP (total GDP divided by total population) is a widely accepted measure of economic development and standard of living. This indicator recognizes that although a nation's total GDP may be relatively large and rapidly growing, if its population is also large and fast growing it may not be able to generate sufficient national income to adequately provide for the needs of the populace.

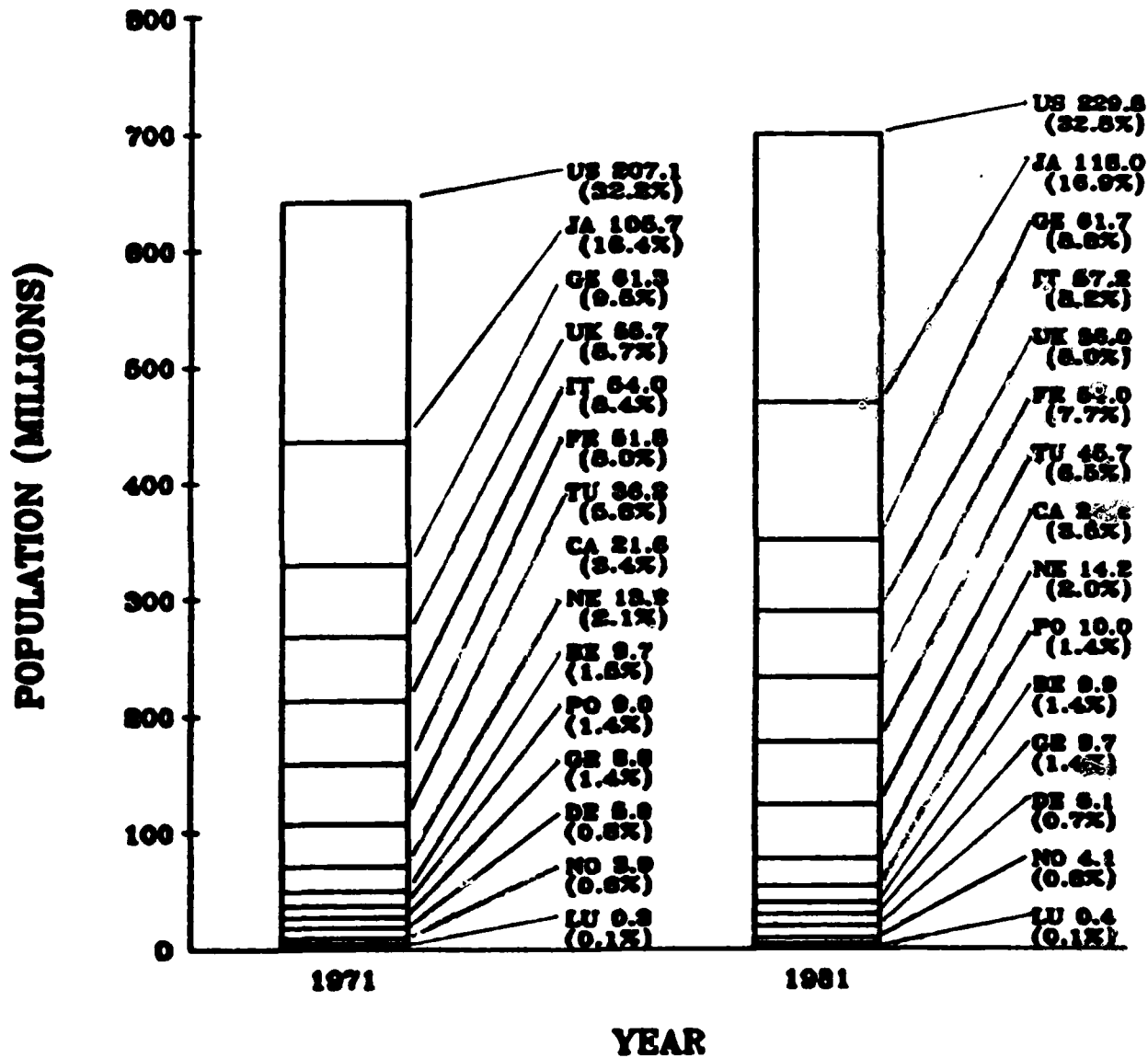
(1) A review of this indicator (Chart A-7) shows a fairly clear cut separation between the "haves" and the "have-nots" or, perhaps more accurately, the "have lesses". All of the Northern Region and Center Region nations except the UK -- nine countries -- are clustered quite closely together at the top with 1981 per capita GDP values ranging from around \$14,000 for Norway to just under \$10,000 for The Netherlands.

(2) Among the top nine, the United States ranks second with a per capita income of \$12,500 (10% below Norway's), followed by Canada, Denmark and Germany with per capita incomes of \$11,600, \$11,200 and \$11,000, respectively.

(3) NATO's Southern Region members occupy the bottom rungs of the Alliance per capita GDP ladder. Per capita national income among these nations ranges from \$6,100 for Italy (12th among all countries) down to \$1,200 for Turkey (last in the Alliance).

CHART A-4

TOTAL POPULATION (MILLIONS)



Each country's value as a percentage of the total is enclosed in parentheses

CHART A-5

TOTAL POPULATION (MILLIONS)

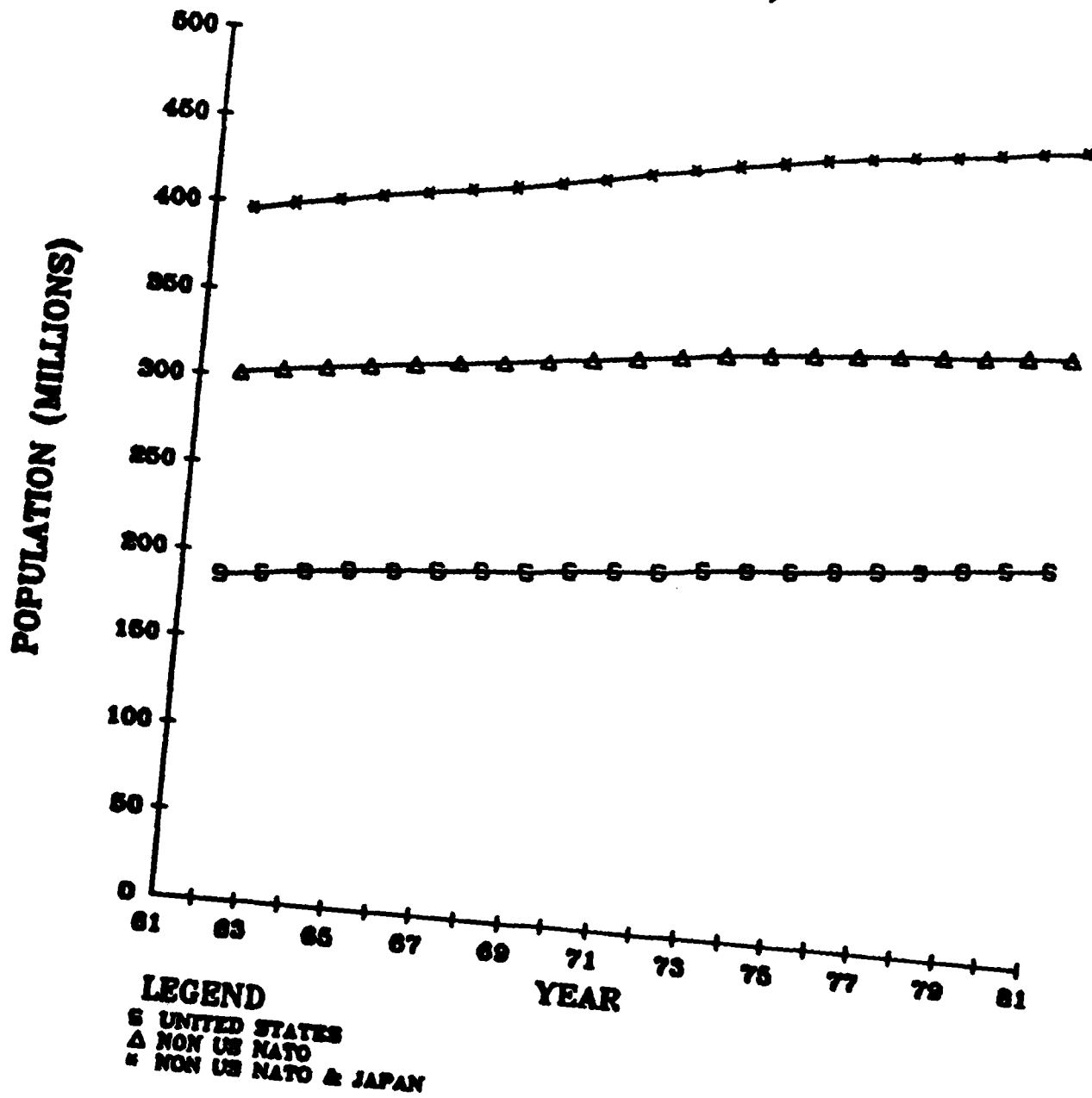


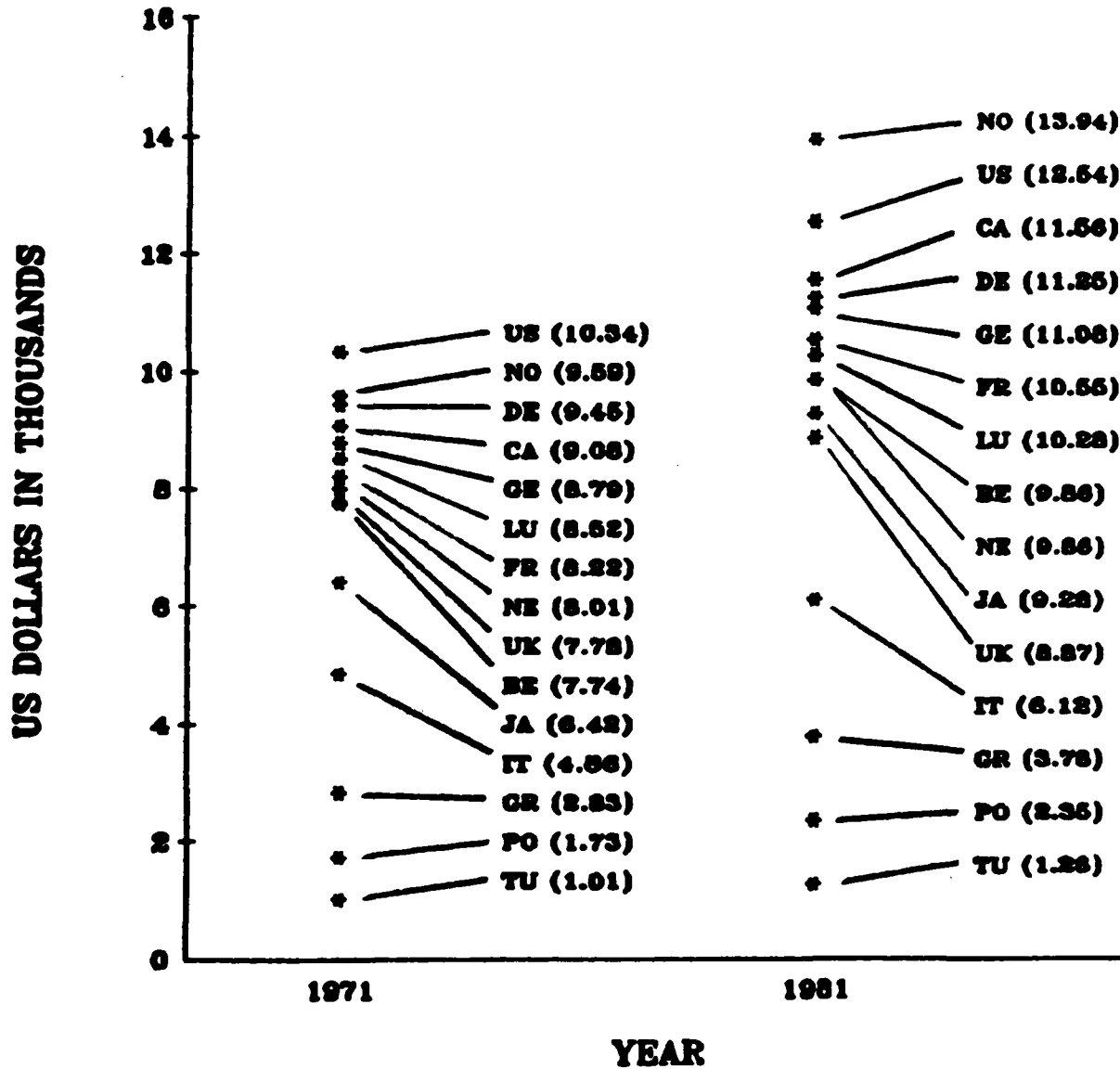
CHART A-6

Total Population
(Millions)

	1971			1981			Total % Change
		% of NATO & Japan Total	Rank		% of NATO & Japan Total	Rank	71 vs 81
Belgium	9.7	1.5%	10	9.9	1.4%	11	+2.1
Canada	21.6	3.4%	8	24.2	3.5%	8	+12.1
Denmark	5.0	0.8%	13	5.1	0.7%	13	+3.2
France	51.3	8.0%	6	54.0	7.7%	6	+5.3
Germany	61.3	9.5%	3	61.7	8.8%	3	+0.6
Greece	8.8	1.4%	12	9.7	1.4%	12	+9.9
Italy	54.0	8.4%	5	57.2	8.2%	4	+5.9
Luxembourg	0.3	0.1%	15	0.4	0.1%	15	+5.8
Netherlands	13.2	2.1%	9	14.2	2.0%	9	+8.0
Norway	3.9	0.6%	14	4.1	0.6%	14	+5.0
Portugal	9.0	1.4%	11	10.0	1.4%	10	+11.6
Turkey	36.2	5.6%	7	45.7	6.5%	7	+26.1
UK	55.7	8.7%	4	56.0	8.0%	5	+0.6
US	207.1	32.2%	1	229.8	32.8%	1	+11.0
Japan	105.7	16.4%	2	118.0	16.9%	2	+11.7
Non US NATO	330.0	51.3%		352.1	50.3%		+6.7
Non US NATO + Japan	435.6	67.8%		470.1	67.2%		+7.9
Total NATO	537.0	83.6%		581.9	83.1%		+8.4
Total NATO + Japan	642.7	100.0%		699.9	100.0%		+8.9

CHART A-7

**PER CAPITA GROSS DOMESTIC PRODUCT
(1981 CONSTANT DOLLARS IN THOUSANDS
1981 EXCHANGE RATES)**



(4) A review of trend data in Chart A-8 (based on 1981 constant prices and 1981 exchange rates) indicates that between 1971 and 1981 the greatest increases in per capita income were achieved by Norway, Japan, Portugal and Greece (+45.4%, +44.6%, +36.1% and +33.6% respectively), while the UK, Denmark, Luxembourg and the US, with increases of +14.1%, +19.1%, +20.6% and +21.2%, respectively, showed the smallest improvement. The 1971-1981 increase in US per capita income, although relatively low among the nations depicted here, is only slightly below the weighted average for all non-US NATO nations combined (21.7%).

Per Capita Total Defense Spending

This indicator, which relates each nation's defense spending to its total population, is depicted graphically in Charts A-13 and A-14.

Although widely used, this measure is difficult to interpret and subject to misunderstanding. Whereas total population may be a good basis for comparing manpower contributions, it is not immediately obvious why population should be a reasonable basis for determining whether defense spending contributions are equitable. A nation with a large population may not necessarily have more funds to devote to defense than a country with a somewhat smaller population. For example, Turkey's GDP is equal to that of Norway, but its total defense spending is about one and a half times greater. However, because it has a population over ten times the size of Norway, Turkey appears (on the basis of the per capita defense spending measure) to be making a substantially smaller contribution than its northern flank ally.

Total Defense Spending by Resource Category 1/

Charts A-15 and A-18 indicate how the US and its allies allocate their defense spending to major resource categories, such as personnel, procurement of major equipment and ammunition and RDT&E. The data represent actual or estimated outlays, adjusted to conform to a definition agreed in NATO on what is included in each resource category.

(1) Charts A-15 and A-16 provide a comparison of major resource allocation trends for the non-US NATO nations combined and for the US. The allied percentage depicted in these trend charts (and the discussion below) exclude France, Greece, Japan, Luxembourg and Turkey for which comparable data was not readily available for all years. The term "capital" expenditure, as used below, covers RDT&E, procurement of major equipment and ammunition, and construction of facilities including NATO Infrastructure.

1/ This section addresses resource category trends through 1981. Information available on allied spending by resource category for 1982 and beyond is not sufficiently refined to enable us to provide firm figures for those years. Based on preliminary data we are inclined to believe that the patterns depicted here will not change drastically during 1982 and 1983.

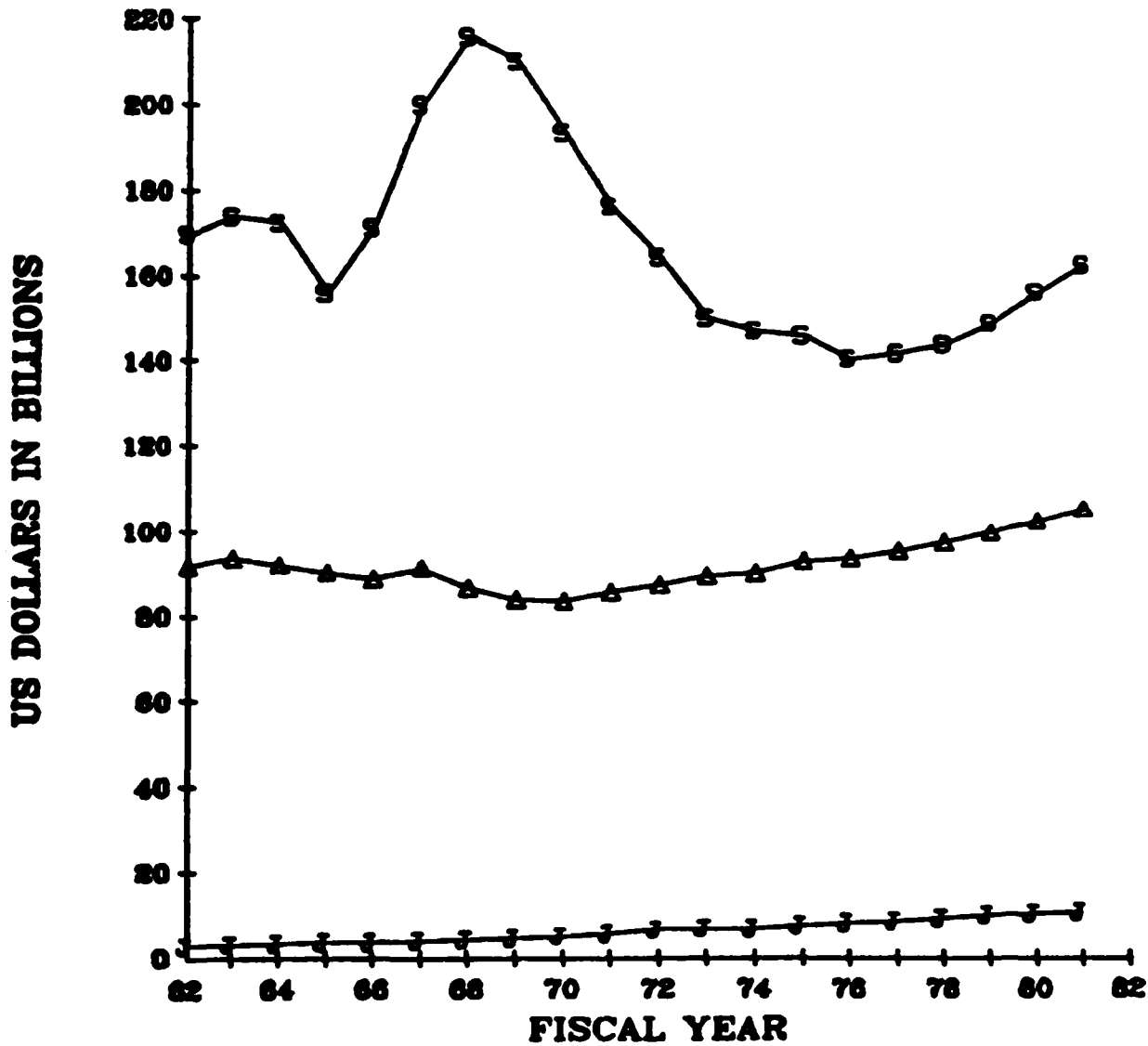
CHART A-8

Gross Domestic Product Per Capita
(1981 Constant Dollars - 1981 Exchange Rates)

	1971			1981			Total % Change
	\$	% of Highest Nation	Rank	\$	% of Highest Nation	Rank	71 vs 81
Belgium	\$ 7738	74.8%	10	\$ 9862	70.8%	8	+27.5
Canada	\$ 9083	87.8%	4	\$ 11562	83.0%	3	+27.3
Denmark	\$ 9445	91.3%	3	\$ 11246	80.7%	4	+19.1
France	\$ 8223	79.5%	7	\$ 10552	75.7%	6	+28.3
Germany	\$ 8786	84.9%	5	\$ 11080	79.5%	5	+26.1
Greece	\$ 2831	27.4%	13	\$ 3781	27.1%	13	+33.6
Italy	\$ 4857	47.0%	12	\$ 6123	43.9%	12	+26.1
Luxembourg	\$ 8522	82.4%	6	\$ 10275	73.7%	7	+20.6
Netherlands	\$ 8009	77.4%	8	\$ 9861	70.8%	9	+23.1
Norway	\$ 9588	92.7%	2	\$ 13937	100.0%	1	+45.4
Portugal	\$ 1725	16.7%	14	\$ 2347	16.8%	14	+36.1
Turkey	\$ 1011	9.8%	15	\$ 1260	9.0%	15	+24.7
UK	\$ 7777	75.2%	9	\$ 8873	63.7%	11	+14.1
US	\$ 10343	100.0%	1	\$ 12539	90.0%	2	+21.2
Japan	\$ 6419	62.1%	11	\$ 9284	66.6%	10	+44.6
Non US NATO	\$ 6657	64.4%		\$ 8104	58.1%		+21.7
Non US NATO + Japan	\$ 6600	63.8%		\$ 8401	60.3%		+27.3
Total NATO	\$ 8078	78.1%		\$ 9856	70.7%		+22.0
Total NATO + Japan	\$ 7806	75.5%		\$ 9759	70.0%		+25.0

CHART A-9

**TOTAL DEFENSE SPENDING (FISCAL YEAR)
US DOLLARS IN BILLIONS
(1981 CONSTANT PRICES - 1981 EXCHANGE RATES)**



LEGEND

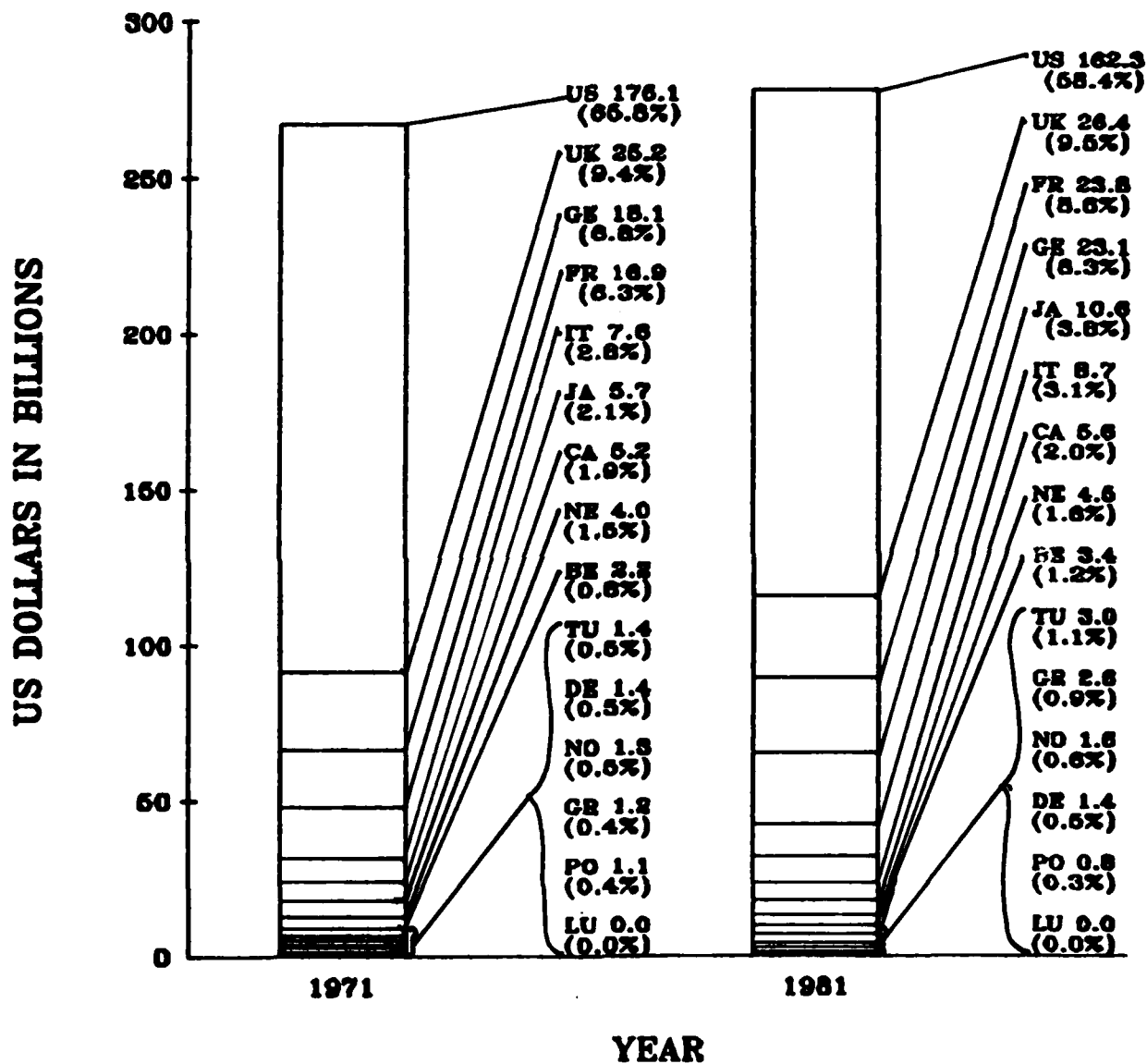
○ UNITED STATES
△ NON US NATO
× JAPAN

FOOTNOTES

Based on the NATO definition of defense spending

CHART A-10

**TOTAL DEFENSE SPENDING (FY)
US DOLLARS IN BILLIONS
(1981 CONSTANT PRICES - 1981 EXCHANGE RATES)**

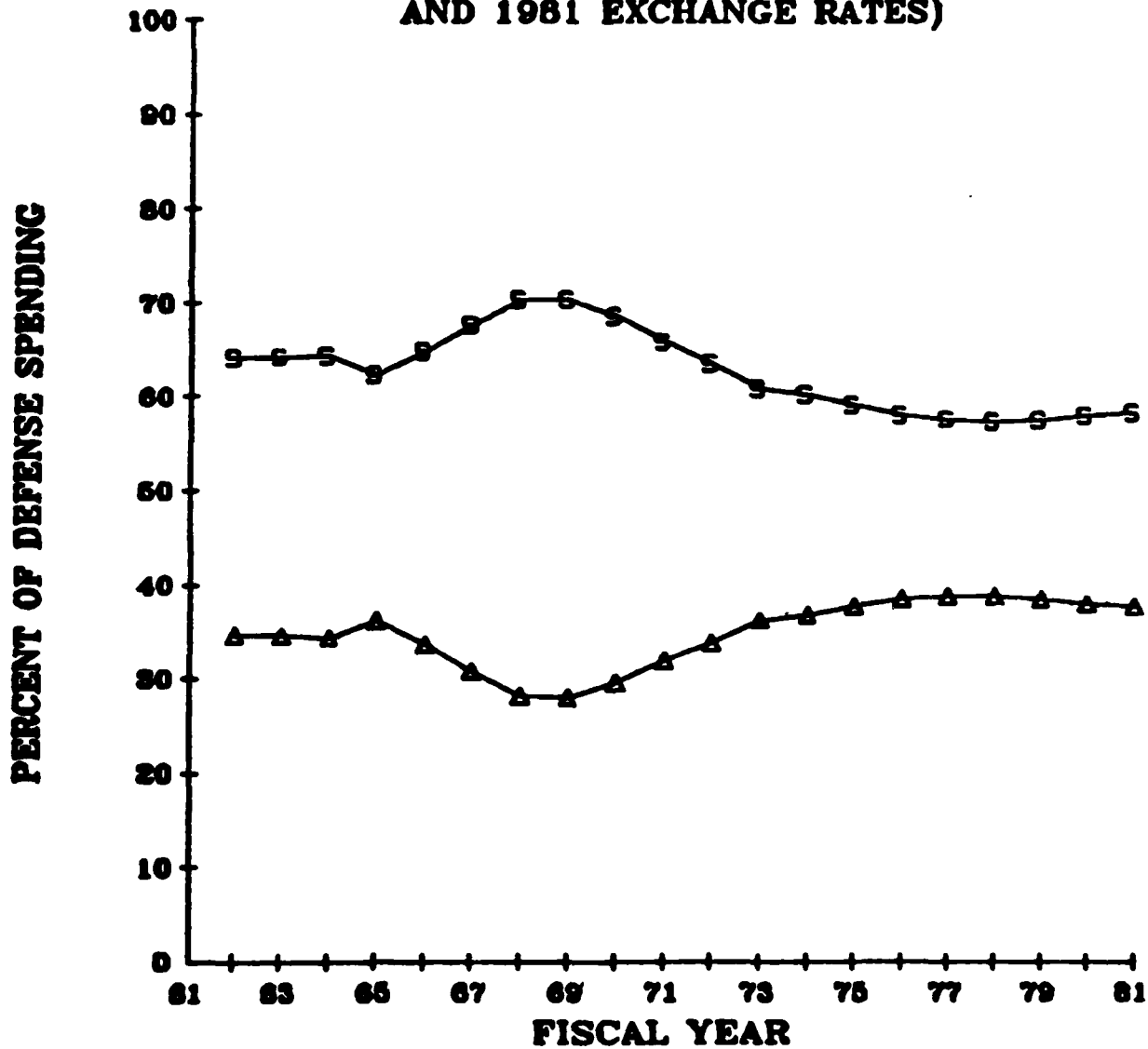


Each country's value as a percentage of the total is enclosed in parentheses

Based on the NATO definition of defense spending

CHART A-11

**US AND NON-US AS A PERCENT OF
TOTAL NATO AND JAPAN DEFENSE SPENDING
(BASED ON CONSTANT 1981 DOLLARS
AND 1981 EXCHANGE RATES)**



LEGEND
S UNITED STATES
Δ NON US NATO

FOOTNOTES
Based on the NATO definition of defense spending

CHART A-12

TOTAL DEFENSE SPENDING (CY) AS A PERCENT OF GROSS DOMESTIC PRODUCT

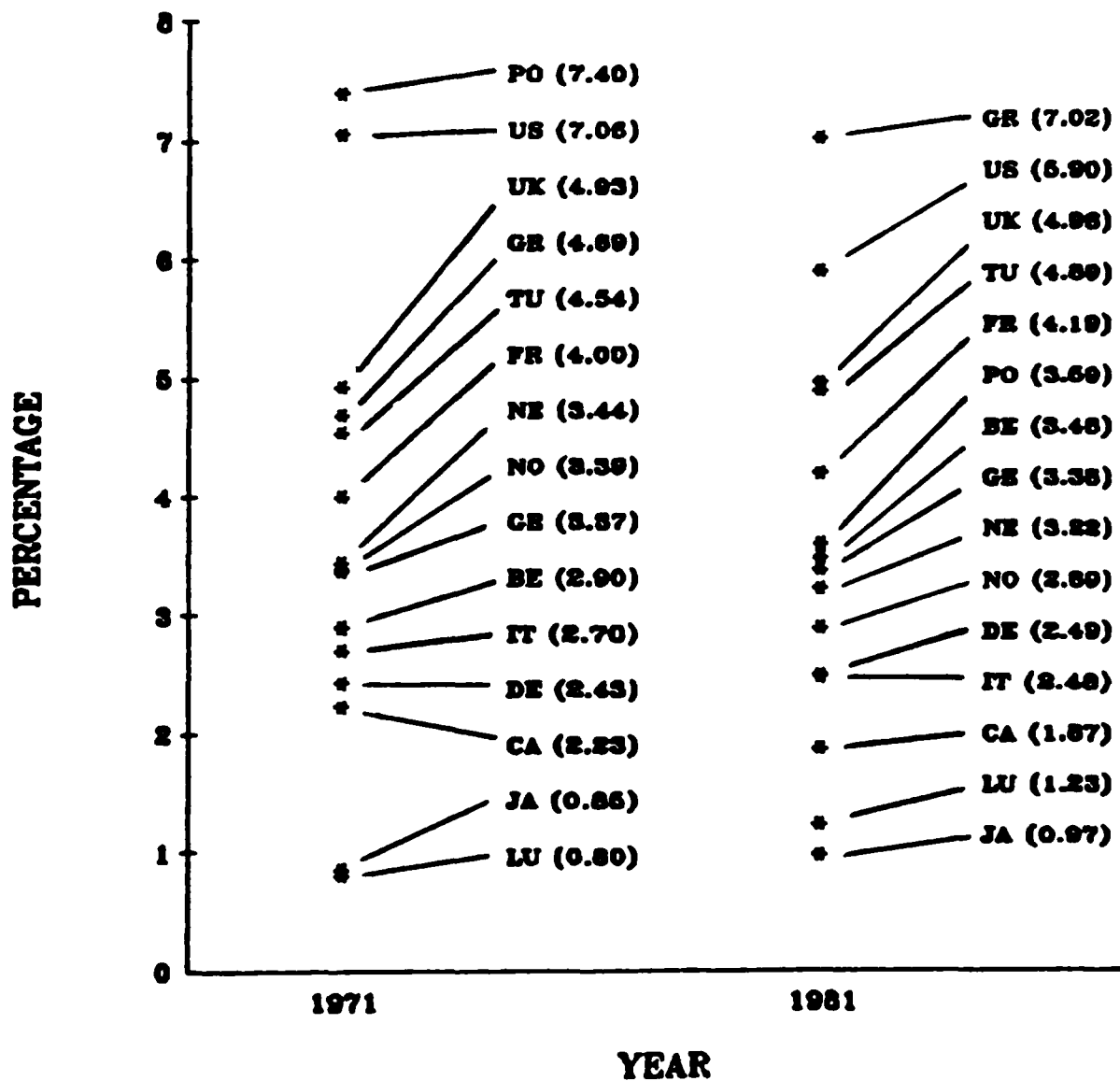


CHART A-13

**PER CAPITA TOTAL DEFENSE SPENDING (FY)
US DOLLARS
(1981 CONSTANT DOLLARS - 1981 EXCHANGE RATES)**

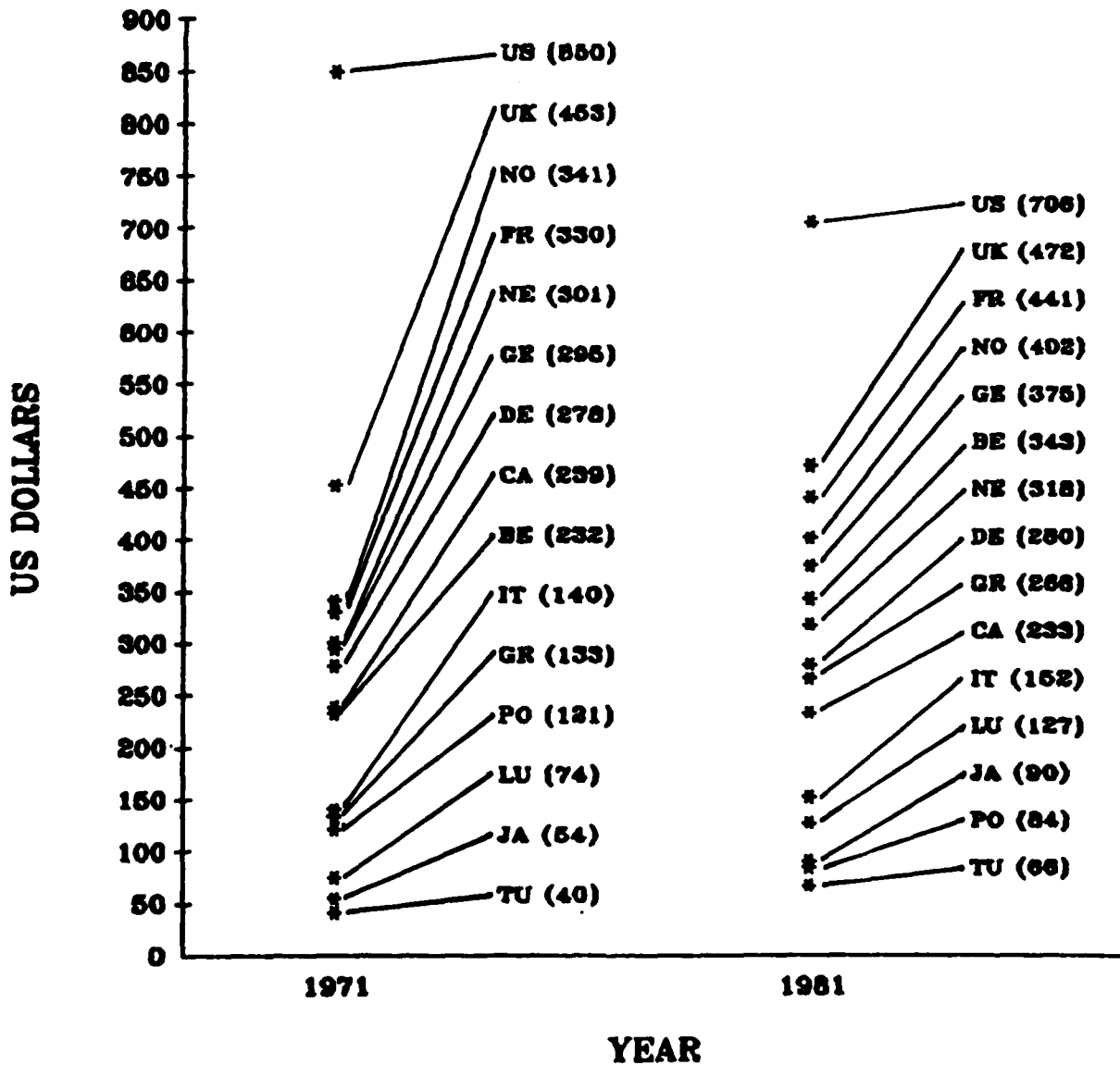


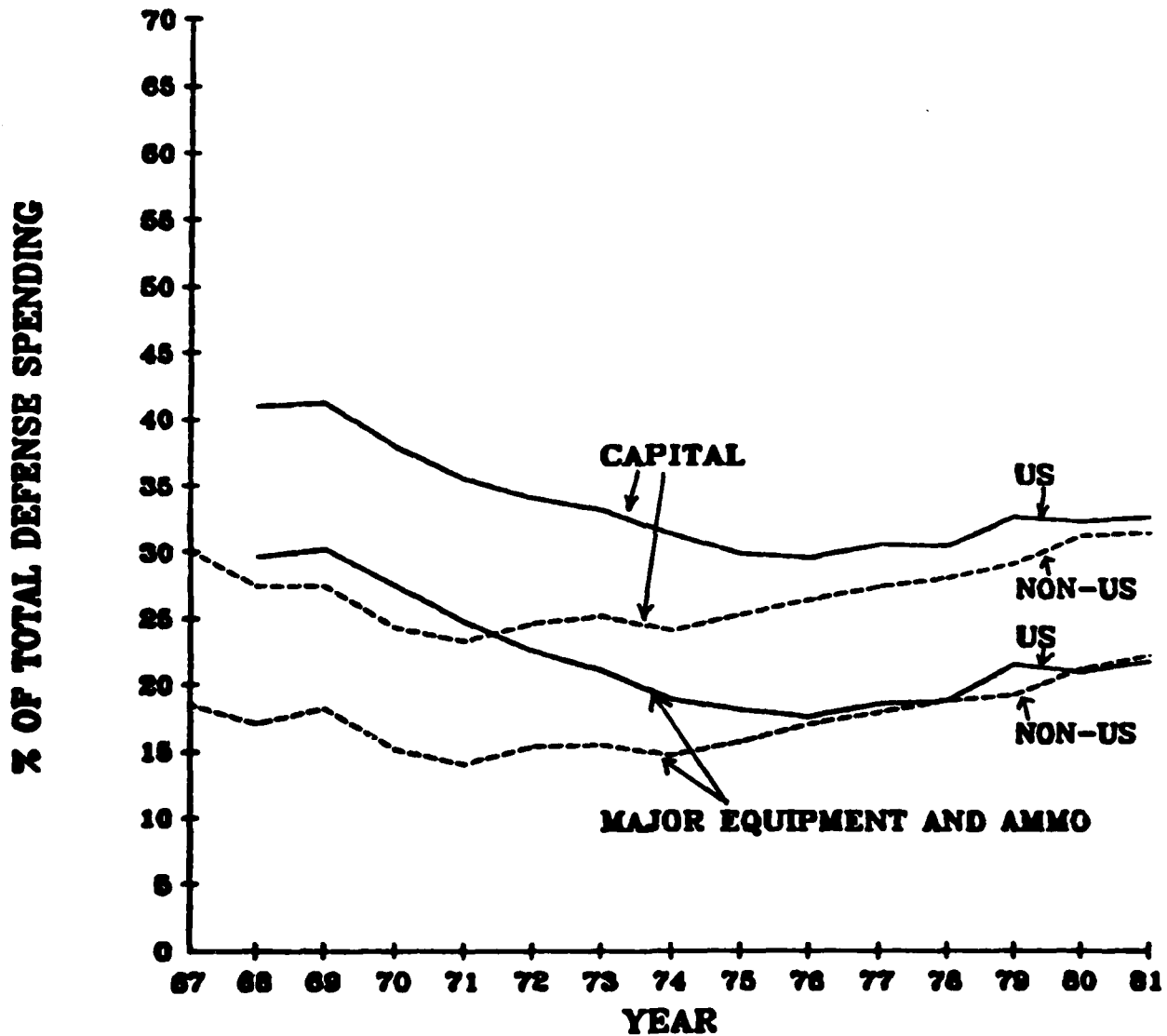
CHART A-14

Per Capita Defense Spending
(1981 Constant Dollars - 1981 Exchange Rates)

	1971			1981			Total % Change
	---	% of Highest Nation	Rank	---	% of Highest Nation	Rank	71 vs 81
Belgium	\$ 232	27.2%	9	\$ 343	48.5%	6	+48.0
Canada	\$ 239	28.1%	8	\$ 233	33.0%	10	-2.5
Denmark	\$ 273	32.7%	7	\$ 280	39.7%	8	+0.9
France	\$ 330	38.8%	4	\$ 441	62.4%	3	+33.6
Germany	\$ 295	34.7%	6	\$ 375	53.0%	5	+27.1
Greece	\$ 133	15.6%	11	\$ 266	37.6%	9	+99.9
Italy	\$ 140	16.5%	10	\$ 152	21.5%	11	+8.4
Luxembourg	\$ 74	8.7%	13	\$ 127	17.9%	12	+71.7
Netherlands	\$ 301	35.4%	5	\$ 318	45.0%	7	+5.6
Norway	\$ 341	40.1%	3	\$ 402	57.0%	4	+17.9
Portugal	\$ 121	14.3%	12	\$ 84	11.9%	14	-30.5
Turkey	\$ 40	4.7%	15	\$ 66	9.3%	15	+65.9
UK	\$ 453	53.3%	2	\$ 472	66.8%	2	+4.1
US	\$ 850	100.0%	1	\$ 706	100.0%	1	-15.9
Japan	\$ 54	6.4%	14	\$ 90	12.7%	13	+65.8
Non US NATO	\$ 259	30.5%		\$ 299	42.3%		+15.1
Non US NATO + Japan	\$ 210	24.7%		\$ 246	34.8%		+17.4
Total NATO	\$ 487	57.3%		\$ 460	65.1%		-5.7
Total NATO + Japan	\$ 416	48.9%		\$ 397	56.2%		-4.5

CHART A-15

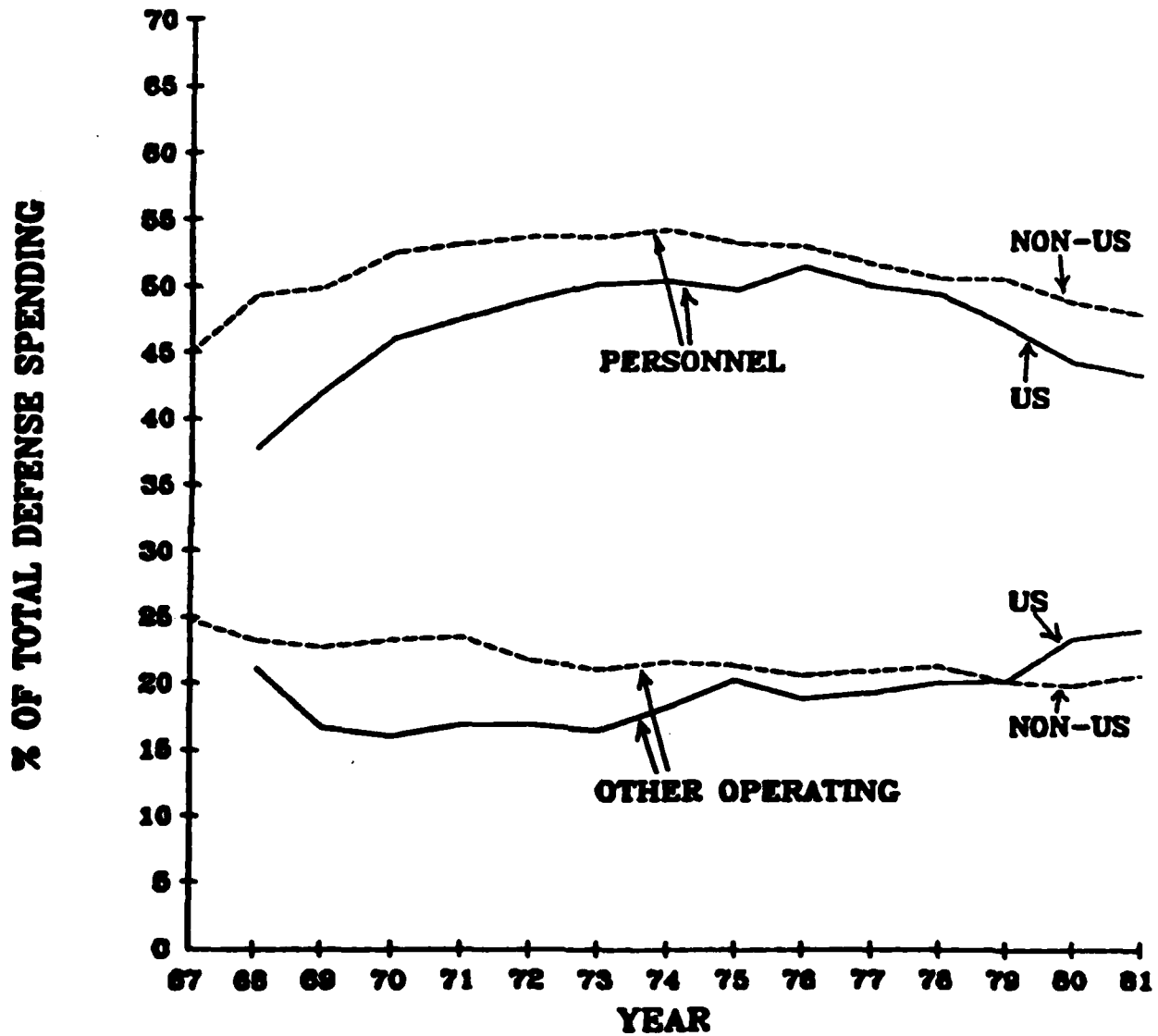
**US AND NON-US NATO SPENDING FOR
CAPITAL AND MAJOR EQUIPMENT AND AMMUNITION
(% OF TOTAL DEFENSE SPENDING)**



Excludes FR. GR. LU. TU

CHART A-16

**US AND NON-US NATO SPENDING FOR
PERSONNEL AND OTHER OPERATING EXPENDITURES
(% OF TOTAL DEFENSE SPENDING)**



Excludes FR. GR. LU. TU

(a) In recent years most of the allies have been allocating a growing share of their defense spending to capital expenditures, thereby reversing a downward pattern that existed during the late sixties and early seventies. The share allocated to capital by the non-US NATO nations combined declined from 30% in 1967 to 23% in 1971, but increased to 31% in 1980 and 1981. A similar pattern is indicated for procurement of major equipment and ammunition -- the largest component of capital. This category declined from 19% in 1967 to 14% in 1971 and then gradually increased to 21% in 1980 and 22% in 1981. During the same period the US capital percentage fell from around 40% in 1968 to 30% in 1975, reflecting, in part, the Southeast Asia phase down. This share remained in the neighborhood of 30% during 1975-78 and then moved upward to 32% in 1980 and 33% in 1981. US spending for major equipment and ammunition followed a comparable trend, declining from 30% to 18% between 1968 and 1975, holding steady at about 18% during 1975-1978 and increasing to a little over 20% in 1979, 1980 and 1981.

(b) The allied personnel percentage (which includes military and civilian pay and allowances and military pensions) increased from around 45% in 1967 to 54% in 1974, but in recent years has declined to 48%. The personnel share of US defense spending climbed from 38% in 1968 to 50% in 1973, remained on the order of 50% to 52% during 1973-1978 and then declined to 43% in 1981.

(c) The allied percentage allocated to "other operating" expenditures (which encompasses all operations and maintenance expenditures less military and civilian pay allowances) dropped from one quarter of total defense spending in 1967 to 21% in 1973. Since 1973, this category has remained between 20% and 22%. US spending for this category dropped from 21% to 17% between 1968 and 1969, held steady at around 16% to 18% between 1970 and 1974 and then gradually increased to 24% in 1981.

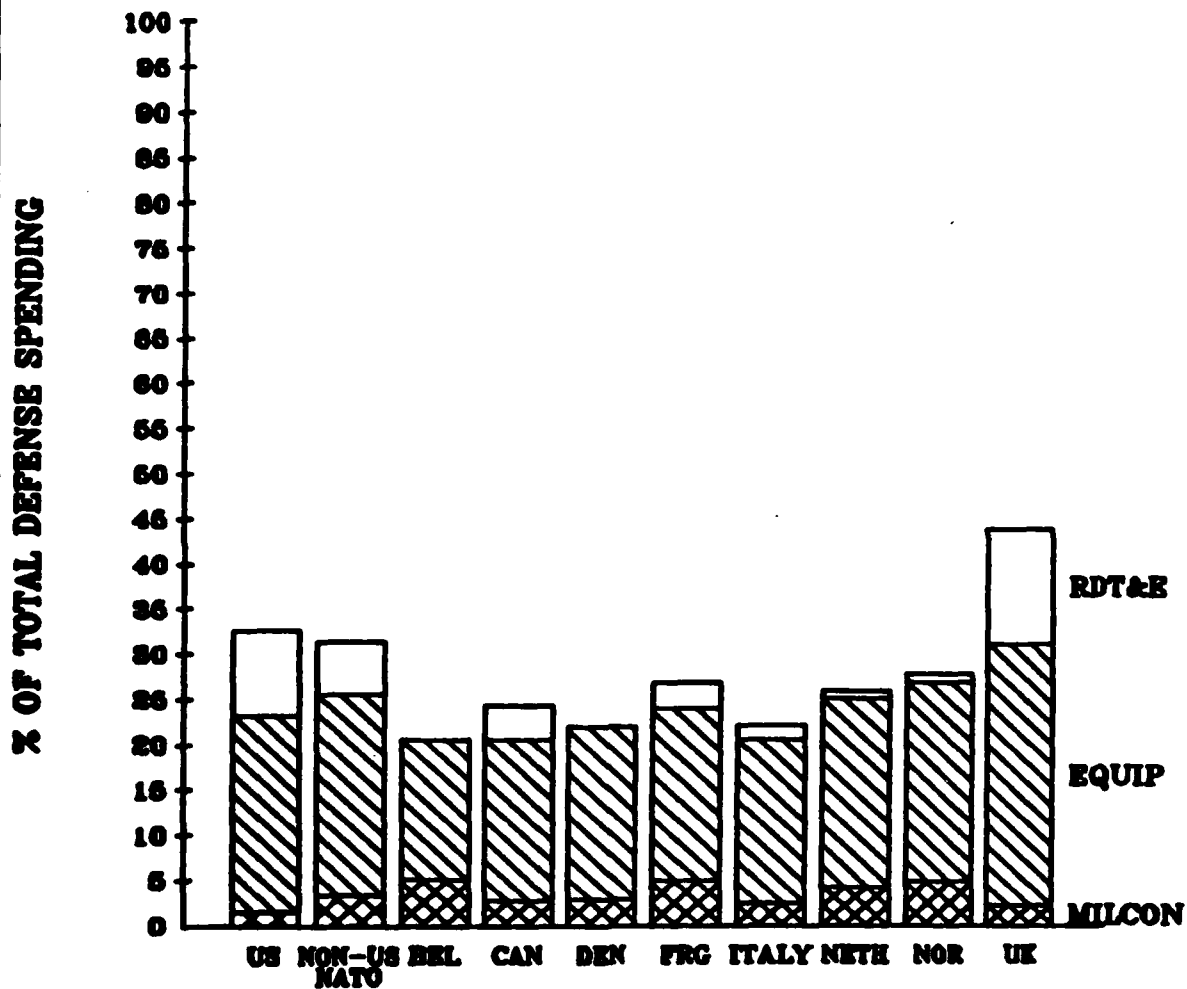
(2) Charts A-17 and A-18 compare the percent of their 1981 defense outlays allocated to each resource category by the US, selected allies and all of the allies combined (excluding, as indicated earlier, France, Greece, Japan, Luxembourg and Turkey).

(a) As Chart A-17 shows, the British lead all NATO nations in the percent of total defense spending devoted to capital spending. UK's allocation of over 40% is followed by 33% for the US, 25% and 30% for Norway and Germany, respectively, and roughly 18% to 25% for most of the other nations.

(b) One fact that seems particularly striking is Germany's relatively low percentage for major equipment and ammunition vis-a-vis the percentage of the US and the UK and several other nations. This appears to be attributable in part to Germany's relatively greater emphasis on labor intensive ground forces and its relatively modest emphasis on capital intensive naval forces.

CHART A-17

**PERCENT OF TOTAL DEFENSE SPENDING
ALLOCATED TO CAPITAL EXPENDITURES
1981**

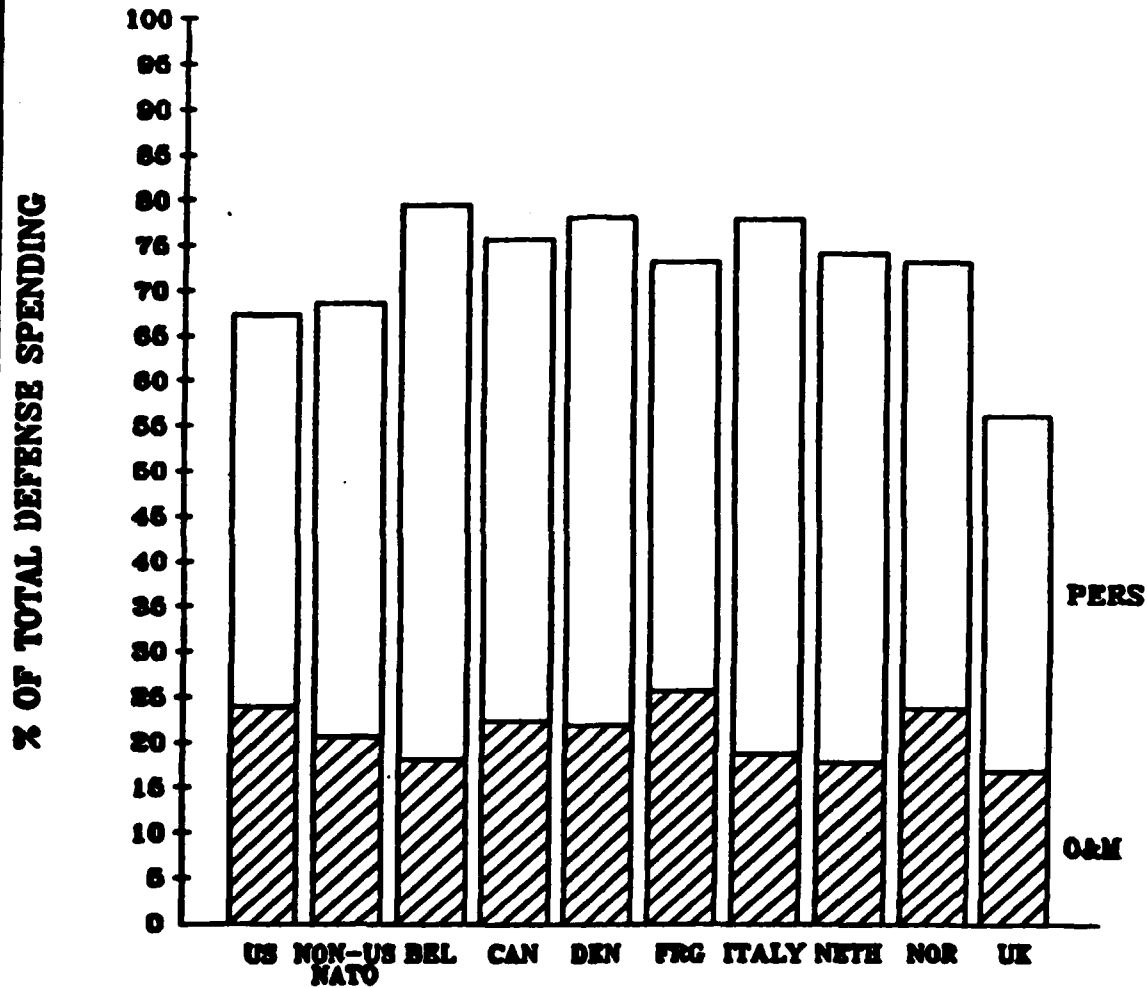


RDT&E 9.4 5.9
EQUIP 21.7 22.2
MILCON 1.5 3.4
TOT CAP 32.6 31.4

Non-US average excludes FR, GR, LU, TU

CHART A-18

**PERCENT OF TOTAL DEFENSE SPENDING
ALLOCATED TO OPERATING EXPENDITURES
1981**



PERS 43.4 48.0
O&M 24.0 20.8
TOT OP 67.4 68.8

Non-US average excludes FR, GR, LU, TU

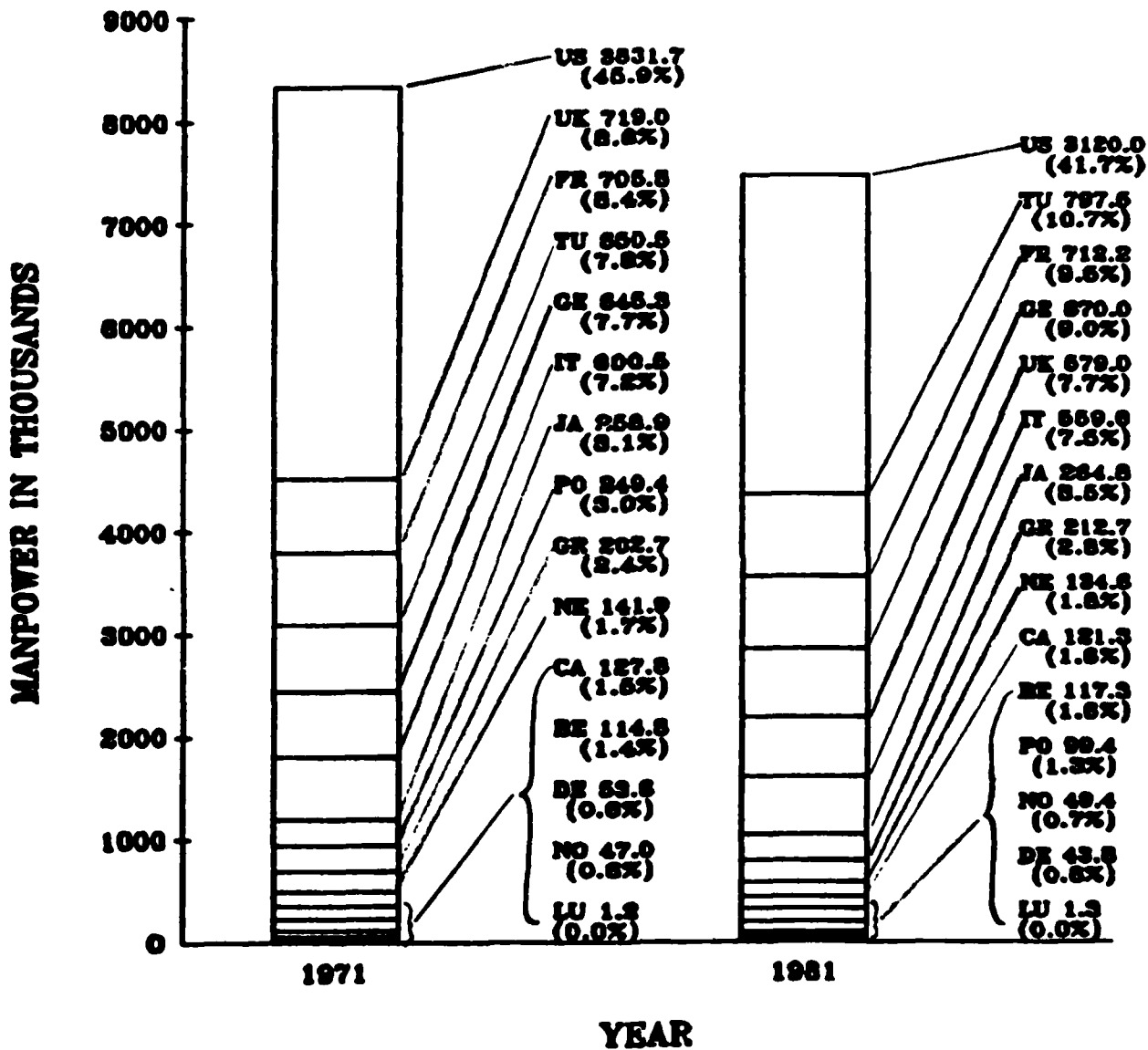
(c) Canada's capital percentage was one of the lowest in NATO during the 1970s, reflecting years of indecision and inaction regarding major equipment replacement needs. The picture has become brighter, however, thanks to a long-range improvement program. Under this plan, the Canadians have acquired, or are acquiring new maritime patrol aircraft, armored vehicles, combat aircraft and major surface combatants. As a result, the capital percentage has increased from less than 15% in the mid-1970s to over 20% in 1981.

(d) British spending for RDT&E has for most years since the early 1950s been the highest or second highest in NATO as a percent of total defense spending.

(e) The share of total spending allocated to personnel ranges from roughly 40% to 60%. Both the US and Germany spend under half of their budgets for this category. The weighted average for all non-US nations (excluding France, Greece, Japan, Luxembourg and Turkey) is 48%.

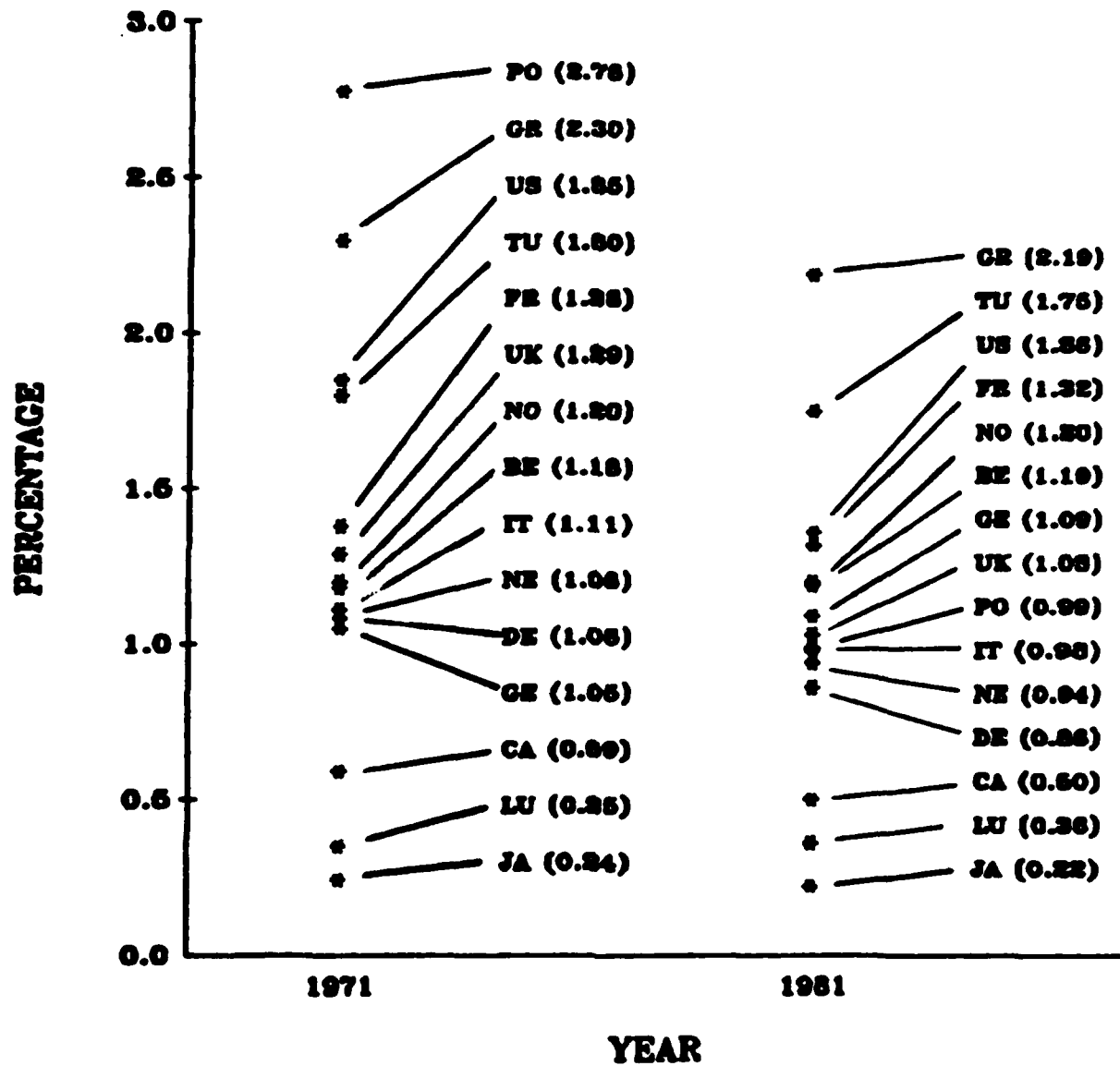
(d) Germany's high percentage and high dollar total allocated to other operating expenditures probably reflect a greater emphasis on operational readiness.

TOTAL ACTIVE DUTY MILITARY AND CIVILIAN MANPOWER (IN THOUSANDS)

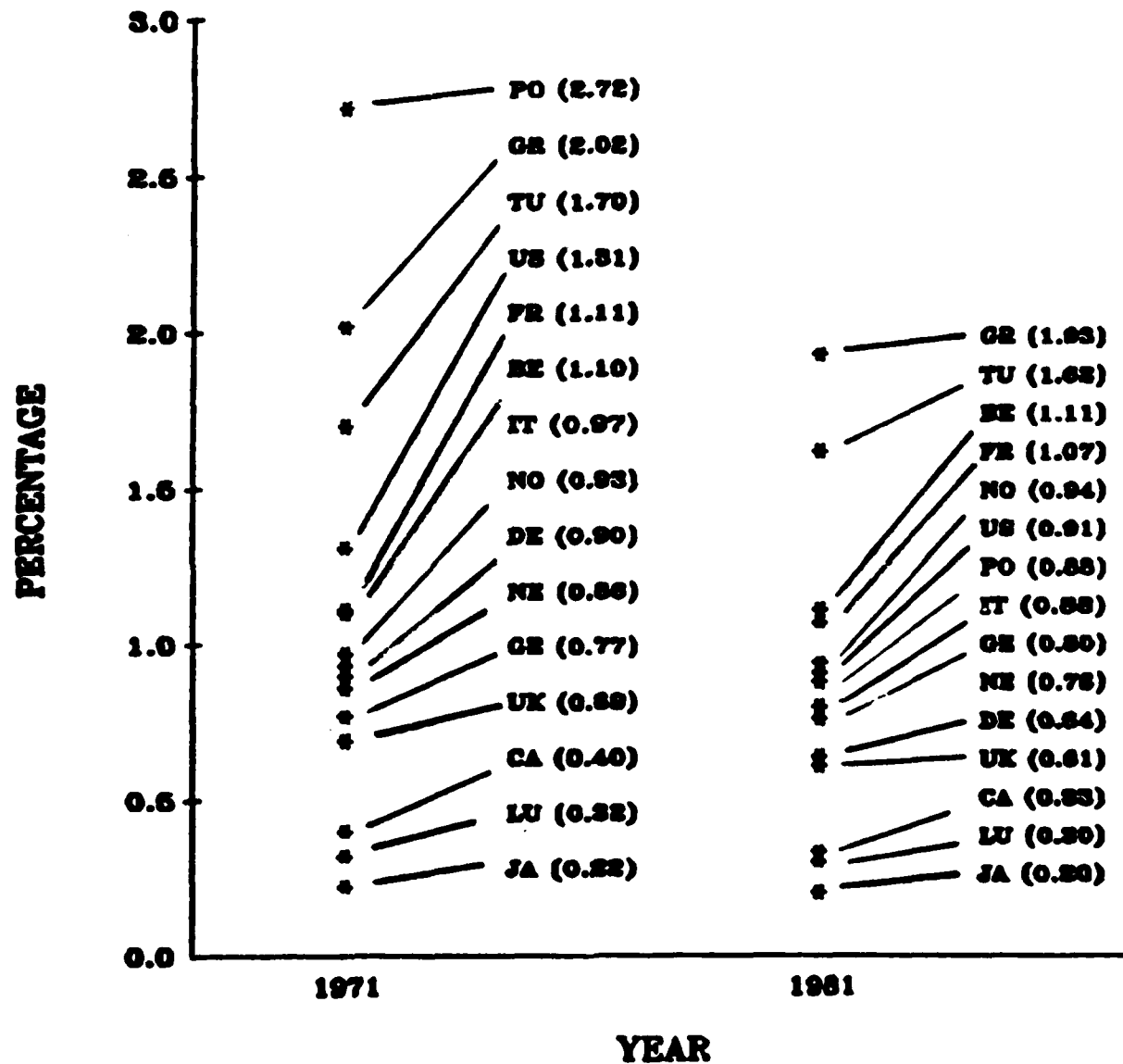


Each country's value as a percentage of the total is enclosed in parentheses

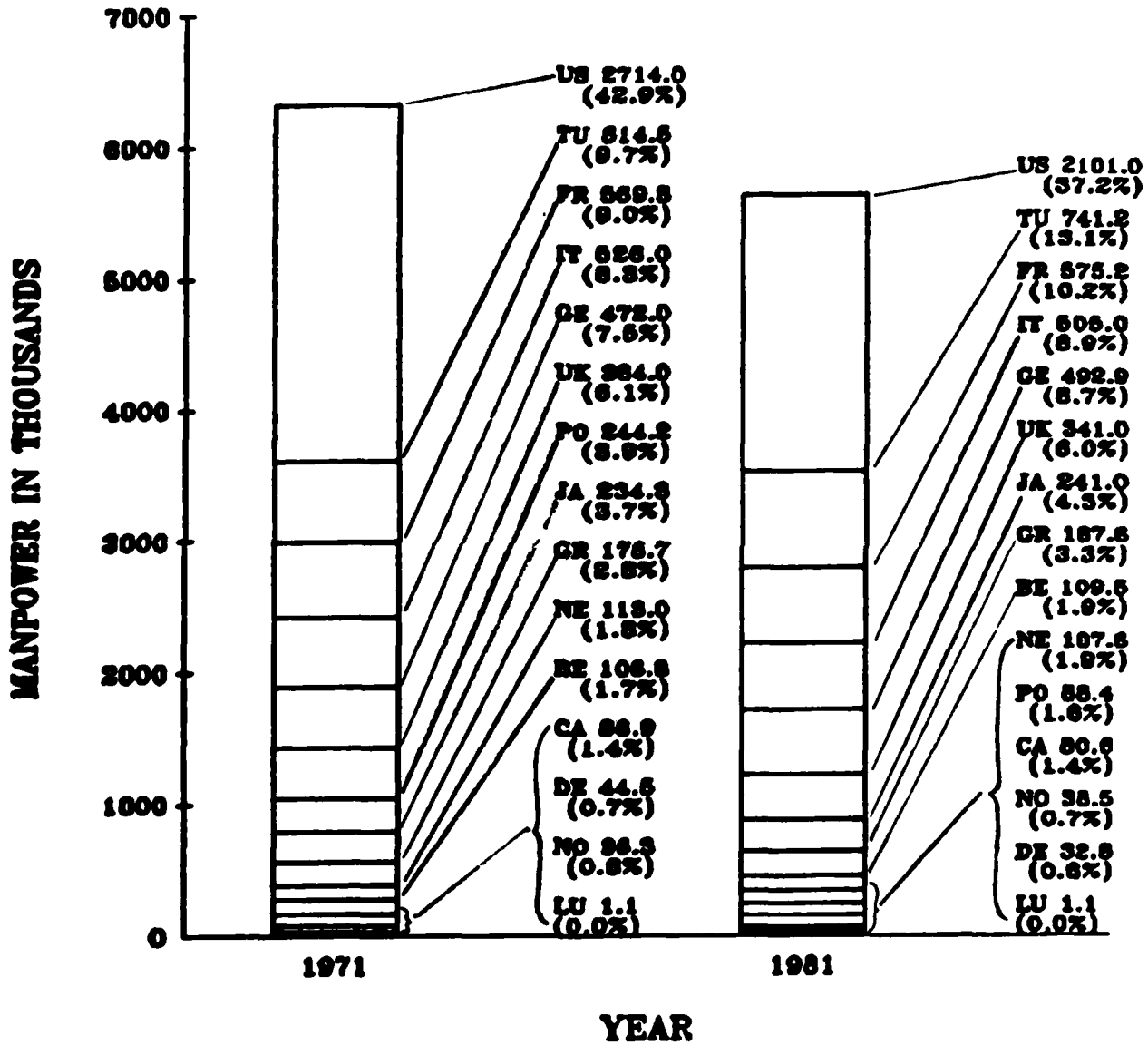
TOTAL ACTIVE DUTY MILITARY AND CIVILIAN MANPOWER AS A % OF TOTAL POPULATION



TOTAL ACTIVE DUTY MILITARY MANPOWER AS A % OF TOTAL POPULATION



TOTAL ACTIVE DUTY MILITARY MANPOWER (IN THOUSANDS)



Each country's value as a percentage of the total is enclosed in parentheses

CHART A-23
Armored Division Equivalents (ADE's)

	-----1981-----	
	% of NATO & Japan Total	Rank
Belgium	1.78%	12
Canada	0.99%	13
Denmark	2.13%	11
France	4.99%	7
Germany	10.43%	3
Greece	4.58%	8
Italy	6.30%	4
Luxembourg	0.00%	15
Netherlands	3.16%	9
Norway	2.14%	10
Portugal	0.46%	14
Turkey	13.67%	2
UK	5.35%	6
US	38.24%	1
Japan	5.79%	5
Non US NATO	55.98%	
Non US NATO + Japan	61.76%	
Total NATO	94.21%	
Total NATO + Japan	100.00%	

CHART A-24
 Naval Force Tonnage
 (All Ships Less Strategic Submarines)
 (Thousands)

	-----1981-----	
	% of NATO & Japan Total	Rank
Belgium	0.30%	14
Canada	1.97%	7
Denmark	0.49%	13
France	5.58%	3
Germany	3.08%	5
Greece	1.96%	8
Italy	1.84%	9
Luxembourg	0.00%	15
Netherlands	1.41%	10
Norway	0.53%	12
Portugal	0.65%	11
Turkey	2.59%	6
UK	12.12%	2
US	64.38%	1
Japan	3.09%	4
Non US NATO	32.53%	
Non US NATO + Japan	35.62%	
Total NATO	96.91%	
Total NATO + Japan	100.00%	

Includes, general purpose submarines, aircraft carriers, principal surface combatants, patrol combatants, amphibious warfare ships, mine warfare ships/craft, coastal & river patrol craft, and general purpose auxiliary ships.

If all national strategic systems are included, The US share would be 65.0%.

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(U) DEPARTMENT OF DEFENSE WASHINGTON DC MAR 83

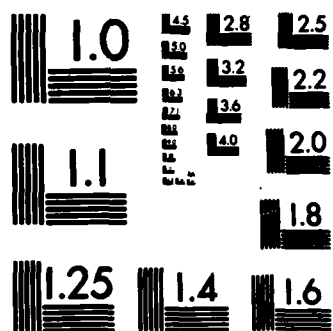
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MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

CHART A-25
Naval Force Tonnage
(Principal Surface Combatants)

	<u>% of NATO & Japan Total</u>	<u>Rank</u>
Belgium	0.46%	14
Canada	3.66%	6
Denmark	0.48%	13
France	7.39%	3
Germany	2.66%	8
Greece	2.65%	9
Italy	3.90%	5
Luxembourg	0.00%	15
Netherlands	2.46%	10
Norway	0.78%	12
Portugal	1.44%	11
Turkey	2.75%	7
UK	11.84%	2
US	52.94%	1
Japan	6.58%	4
Non US NATO	40.47%	
Non US NATO + Japan	47.06%	
Total NATO	93.42%	
Total NATO + Japan	100.00%	

CHART A-26

Tactical Air Force Combat Aircraft

	-----1981-----	
	% of NATO & Japan Total	Rank
Belgium	2.51%	9
Canada	1.88%	12
Denmark	2.01%	11
France	9.12%	3
Germany	9.71%	2
Greece	4.09%	6
Italy	4.44%	5
Luxembourg	0.00%	15
Netherlands	2.41%	10
Norway	1.23%	13
Portugal	0.34%	14
Turkey	3.90%	7
UK	6.76%	4
US	47.72%	1
Japan	3.88%	8
Non US NATO	48.40%	
Non US NATO + Japan	52.28%	
Total NATO	96.12%	
Total NATO + Japan	100.00%	

Includes fighter/interceptor, attack, bomber, tactical reconnaissance
and combat capable trainer aircraft.

APPENDIX B

Data Problems. Any discussion of comparative burdensharing must rest on comparability of the underlying data on which comparisons are based. Ultimately all the data must come from the countries concerned, but each has its own budget, financial and tax systems. In addition, different methods of recruiting and managing manpower make it difficult to compare personnel costs between nations. Problems are created by fluctuations in international exchange rates and differences in the quality and use of inflation indicators. NATO has attempted to deal with some of these problems, e.g., by agreeing on a common definition of what constitutes defense expenditures. NATO has not, however, formally addressed such problems as differences in purchasing power parity, the effects of taxation on defense expenditures or ways to normalize manpower costs resulting from the use of volunteers or conscripts.

Definition of Defense Expenditures. The most fundamental basis for a comparison of NATO defense efforts is in a common definition of defense expenditures. Broadly speaking, these are defined for NATO purposes as expenditures made by national governments specifically to meet the needs of the armed forces. Under the NATO definition, expenditures for any given period should represent payments made during that period, even though for national purposes some of these payments may be charged against the budget for a preceding period. Payment is considered made when the money is actually disbursed, and only actual payments are counted. Indirect costs, such as loss of revenue due to tax exemptions on government transactions, do not constitute payment. Examples of non-defense budget items which may be included under the NATO definition are security forces (if they are trained in military tactics, equipped with military equipment and will be under military authority in wartime), government contributions to military retirement funds and non-reimbursable military assistance. Items not included in the NATO definition include war damage, veterans' payments and benefits, civil defense and stockpiling of industrial raw materials.

Even this definition causes problems. First, it may be argued that the division between defense and other public expenditures contributing to Free World security is somewhat arbitrary. Economic assistance to developing countries and expenditures to keep free access to Berlin do supplement military outlays where they promote political cohesion and contribute to Free World stability.

A second reservation sometimes expressed about the NATO definition is that the cost of defense should be defined as the value of civilian goods and services which have been foregone because of the defense effort in question -- this is the economists' opportunity cost. The difference between the opportunity cost and the defense expenditure may be significant in the case of military personnel for countries which rely mostly on conscripts receiving pay below that which would correspond to the value of their services to the economy. The defense effort of these countries is, therefore, somewhat understated in relation to that of other countries with volunteer forces. To be absolutely accurate, account should be taken of the

fact that the opportunity cost exists only insofar as the factors of production, such as manpower, would be actually used in the absence of the defense effort. This is the case in countries where the economy has reached a state of full employment. Clearly, as unemployment changes in each country the opportunity cost of conscripted manpower also changes.

Exchange Rates. Exchange rate fluctuations can exert an important impact on international comparisons of defense burdensharing. A common example is that whenever the US dollar exchange rate falls in terms of the currency of a NATO ally, that country's defense budget appears smaller when converted to dollars. The problem of comparison is complex due to many significant fluctuations in allied currencies vis-a-vis the US dollar.

Exchange rate movements in Europe this year, where several currencies fluctuated widely vis-a-vis the US dollar, have increased or decreased the costs to us for stationing our forces and their dependents in NATO countries. We have held exchange rates constant in this report in order to minimize possible misleading effects of exchange rate fluctuations on burdensharing comparisons.

In addition, exchange rate fluctuations reflect economic and political changes in supply or demand for currencies -- this in turn reflects changing financial and trade relationships between countries. They can reflect swings in mood or business confidence between countries as well. Because exchange rates are subject to many economic and political forces ^{1/}, resulting changes in troop stationing expenses are not, in real terms, costs to the Alliance in burdensharing terms. Instead, they are largely indirect costs of international economic and political swings.

It is crucial, therefore, to find a method for equalizing exchange rate fluctuations. The most precise method developed to date is the Purchasing Power Parity (PPP) system. The PPP states the number of units of a country's currency which have the same purchasing power for a category of goods or services which a US dollar has in a given year. The PPP method is used to make comparison between two countries, but becomes far more complex when several economies are being compared.

A system developed by the United Nations ^{2/} to try to solve this problem is the "Country-Product-Dummy" (CPD) method which uses a set of "international prices" derived from Purchasing Power Parities. The UN comparisons using these "international prices" have revealed a very different picture when compared with straight, linear exchange rate conversions. The latter

^{1/} Since 1971, most countries have used an international system of floating exchange rates.

^{2/} International Comparisons of Real Product and Purchasing Power, by Irving B. Kravis, Allan Heston and Robert Summers, published by the Statistics Office of the UN and the World Bank, John Hopkins Press, 1978.

method tends to understate real expenditures by other countries relative to the US, especially when the dollar is strong. Dollar depreciation against some European currencies in recent years has tended to reduce the margin of error somewhat. In 1970, for example, a US study found that the US GDP was 28.3% lower than the aggregate GDP of a group of other countries measured in terms of "international dollars", but 8.9% higher when measured by linear exchange rate conversions. Assuming that 1970 UN data on GDP comparisons could be used in a proportionate manner to compare defense expenditures, for Germany as a percent of US expenditures for 1970 would change from 12.61% measured by UN exchange rate conversions to 10.33% -- an 18% decline. By 1973, however, the defense expenditure ratios would move in the opposite direction -- from 6.59% (if measured by the UN method) to 7.61% (if measured by international dollar prices) -- a 15% increase.

Because of such problems of statistical methodology, NATO uses agreed-upon statistical data and systems in preparing its International Staff Memorandum -- "Basic Statistical Data on the Defense Effort and Economic Developments of NATO Countries". The staff memorandum employs an exchange rate conversion method to compare national defense expenditures. The NATO International Staff is persistently working on the problem of developing better methodology to improve price deflators. This will be a precondition to the development of an accepted PPP system for defense comparisons. Meanwhile, NATO draws its comparisons using the best available data plus other consistent sources in its International Staff Memorandum. The UN study, however, indicates the weakness of current exchange rate conversions.

The Effects of Inflation on Defense Spending Measurement. Methodology for handling the complex problem of measuring the effects of inflation on defense spending comparisons has evolved into a science of its own. The commonly used system in NATO is known as the deflator; it is designed to permit comparisons among several countries with differing exchange rates. Use of the deflator permits the study of real outlays in goods and services. Deflators can be computed in many ways, and several different deflator methods have been used in attempts to draw significant comparisons and conclusions about the defense budgets of NATO countries and Japan - but none developed are flawless. The deflator is the best tool devised at this time as a shorthand for allowing comparisons to be drawn and is used widely. In short, the deflator factor sets what is believed to be the fair rate of comparison between the prices of the goods and services and budget outlays of one country with those items in another, thus allowing for inflation rates.

Inflation can have a significant impact on the public's perception of defense spending. While budget outlays for defense in nominal terms have continued to increase, the goods and services that those monies will buy increases less rapidly because of the rate of inflation. Leaders have great difficulty conveying this message, which leads to another key aspect of the effect of inflation on defense spending -- the political impact. In inflationary times, leaders experience strong competition among conflicting interests and programs for scarce budgetary resources.

When social and welfare programs are threatened and the burdens of society to care for its young and its old are increasingly difficult because of inflation (witness the financial problems of a social security system), defense spending is not always politically popular. This influences leaders and politicians who want to be reelected. In short, the effects of inflation on defense spending and on a nation's will to spend for defense can be devastating. Many NATO countries are caught in this spiral now, and the situation worsened for several of them during 1981.

General Economic Impact of Defense Efforts. While NATO countries have political and defense aims in common which they endeavour to reach through the Alliance, the statistics indicate clearly that, from many points of view, and in particular as far as economic positions are concerned, they are in very different situations. This is true for their areas and populations. The latter varies from some 236 thousand for Iceland to about 230 million for the United States. The density of the population is also very different ranging from six persons per square mile in Canada and Iceland to 900 in the Netherlands. Setting aside areas for military use is more difficult and represents a heavier burden for the economy in countries whose space is limited. Obviously, the Gross Domestic Products (GDP) also vary widely from the order of \$3-4 billion in the case of Iceland and Luxembourg to more than \$2,882 billion in the case of the United States. The Gross Domestic Product of the United States represents about 50% of the total of the GDP of all NATO countries. The second largest, i.e., that of Germany, amounts to about 24% of that of the United States, and 12% of the NATO total.

To a large extent, variations in the GDP result from differences in the size of the countries and, in particular, their population. However, there are also large variations in the GDP per capita which indicate broadly the degree of industrialization and development. The GDP per capita for Norway is about \$14,937 compared to \$1,260 for Turkey.

There has always been considerable support in NATO for the concept that countries whose general economic strength is greatest might, other things being equal, be expected to assume the greatest defense burden, i.e., devote a greater proportion of their national product to defense. This is analogous to the principle of progressive taxation which most countries have for many years followed in sharing internally the burden of government and common services. There follows the principle that those with higher incomes should contribute not only a greater amount absolutely but also a greater proportion of their incomes. Therefore, civil consumption or investment has to be restrained or reduced in order to meet the common needs of the Atlantic Community. Limitations should be least for the weaker countries.

Many, especially in European countries, argue that the division between defense and other public expenditures contributing to Free World security is somewhat arbitrary. Indeed, outlays for education, social purposes, public investment intended to speed up economic growth or cor-

rect an unbalanced state of development in a country such as Italy or Spain, assistance to developing countries, expenditures to keep free access to Berlin, etc. supplement military outlays insofar as they assist in keeping political cohesion, both at home and abroad, and in resisting Communist threats. But any definition of the defense effort other than the present NATO definition could equally well be labeled arbitrary. It may also be noted that while some civilian expenditures strengthen the defense position of member countries, conversely, military outlays (e.g., infrastructure projects for airfields, roads and so on) may sooner or later benefit the civilian economy. More generally, the feeling of security resulting from the defense effort is a prerequisite of social order and prosperity. From this point of view, it brings substantial economic advantages.

From a strictly economic point of view, the cost of defense could be defined as the "opportunity cost", i.e., the value of civilian goods and services which fail to be produced owing to the defense effort in question. The difference between the "opportunity cost" and the defense expenditure may be significant in the case of military personnel for countries which rely mostly on conscripts receiving only token pay, much below that which would correspond to the value of their services to the economy. The defense effort of these countries is, therefore, somewhat underestimated in relation to that of other countries whose forces contain a greater proportion of regulars. However, to be absolutely accurate, account should be taken of the fact that the "opportunity cost" exists only insofar as the factors of production, such as manpower, would be actually used in the absence of the defense effort. This is the case in countries where the economy has reached a state of full employment. But the concept of full employment varies from country to country. Therefore, it may be safer to allow that all NATO governments aim to maintain the highest possible degree of employment, and that if, in spite of their efforts, some factors of production, for instance manpower, remain unused, it is because they meet serious obstacles such as a risk of inflation, balance of payments deficits or lack of capital.

Balance of Payments. For some countries, foreign exchange difficulties have indeed been one of the main obstacles encountered in the defense effort. However, in the case of fairly advanced countries, it is not normally an obstacle of a structural nature, as are the obstacles met by developing countries. In this respect, looking only at the military transactions affecting the foreign exchange position would be misleading; indeed, a relatively large deficit on such transactions may be easily financed by countries whose general balance of payments is positive, or who have accumulated abundant gold and foreign exchange reserves, while even a small deficit on military transactions may seriously add to the balance of payments difficulties experienced by other countries. In short, the problem of the impact of the defense effort on the foreign exchange position of a country has to be examined in the context of

its overall external finances, i.e., taking account of the strength of its balance of payments and of its gold and foreign exchange reserves.

Manpower. As far as manpower is concerned, it has been felt to be appropriate to consider the total of military and civilian personnel engaged in the armed forces and defense ministries. Taking account of military personnel alone would have been misleading as some countries have deliberately followed a policy of "civilianization" of their armed forces. The comparison of the total of such personnel with the total population shows that the resulting percentages vary somewhat from country to country: they are the highest in Greece and Turkey and lowest in Canada and Luxembourg. Obviously, the absorption of a certain percentage of manpower by the armed forces may have different effects on member countries, according to whether these countries are in a state of full employment or not.

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